

# COMMERCIAL CAR JOURNAL

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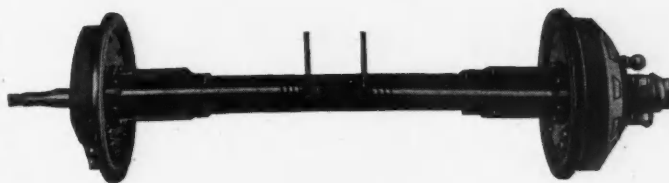
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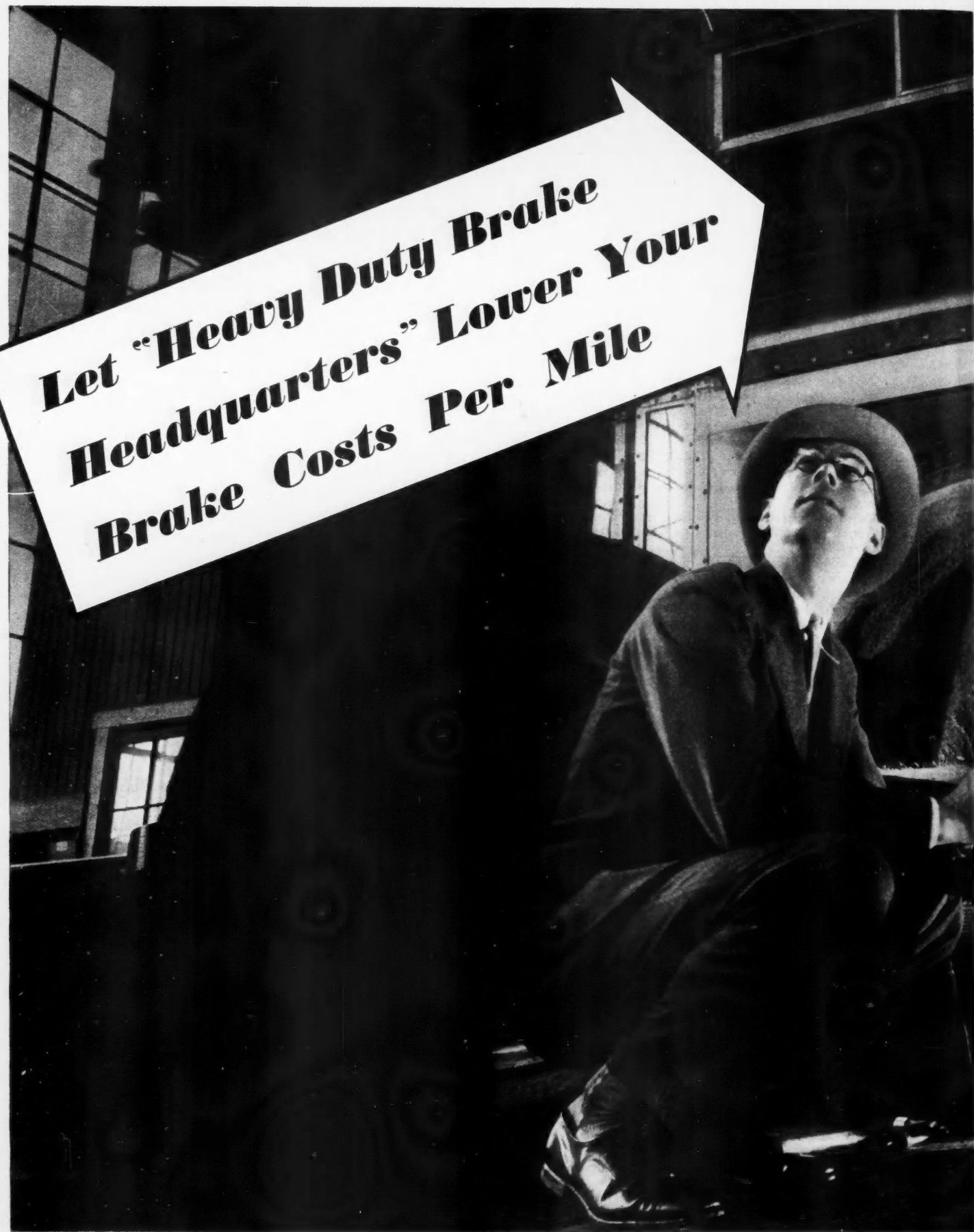
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# The Transportation Problem and Federal Coordination

By JOSEPH B. EASTMAN, FEDERAL COORDINATOR OF TRANSPORTATION

**I**N the immediate search for waste which can be eliminated, the Coordinator has no authority over motor vehicles, except to secure information with respect to those which are operated, directly or indirectly, by the railroads. But I have not felt that I should confine the search within any narrow limits on this account. Waste is more than a matter of cutting down expense. It may be equally wasteful to neglect opportunities for building up business by making service more attractive and usable. My organization is not overlooking the motor vehicle and the use which can be made of it to supplement or substitute for rail service as a friendly ally instead of an enemy.

It ought to be clear that no regulation or restrictions should be imposed upon any form of transportation merely for the purpose of benefiting some other form of transportation. The test must be the public interest. On the other hand, whatever the public interest may require ought to be done no matter how it may affect private interests. These are principles which no one is likely to gainsay. The danger is that they will be given only lip service.

Public regulation of motor vehicles is not all of one kind. One type has for its purpose the protection of the safety, convenience, and purse of the public in the use of the highways. I take it that the need for such regulation is conceded. The questions are what form it shall take, how a proper degree of uniformity can be attained throughout the country, and whether there is any need for action by the Federal Government.

I am approaching this question without any preconceptions, and with no desire to invoke the Federal power unless clear need appears. In any event, it may be that the authority can be entrusted to some governmental agency which can hold it in reserve, to be used sparingly and only when and where occasion requires.

The third type of public regulation has to do with taxation, license fees, and the like. I refer to it as regulation, because it is based on considerations which are somewhat different from those which govern ordinary taxation. It is one thing to provide such public ways for the use

*"Transportation is in a state of flux. Many important developments will emerge in rates, service and regulation and they will be for the good of the country."*



## EDITOR'S NOTE

*This article covers the essential points of vital interest to the motor truck industry which were part of a lengthy address by Mr. Eastman to the delegates attending the Interstate Bus & Truck Conference. The doings of the conference are reported on following pages.*

of the people of the country in their capacity as individuals, and it is another thing to provide them for business enterprises which will use them to compete as carriers with other necessary transportation agencies which must depend upon their own capital and revenue resources. To what extent, under such circumstances, should special taxation be

imposed, in addition to general taxation, to sustain the burden of these public ways, and to what extent is such special taxation already imposed?

You must not assume from the statement of this question that I have jumped at conclusions as to its answer. What we are after is the facts, to whatever conclusions they may lead. I am not even sure that all the facts are yet capable of ascertainment.

The fourth and final type of public regulation which I shall discuss is the type which is embodied in the Interstate Commerce Act, so far as the railroads are concerned. Its primary purpose is to protect the using public, directly or indirectly. Regulation of rates is the keystone.

Today, due to the rapidly increasing competition from unregulated forms of transportation, confusion and instability are permeating the rate structure of the country.

For some time the railroads were slow to make rates to meet truck competition, but they are speedily overcoming this initial reluctance, and the motor vehicles and the water lines as well are becoming apprehensive. They have filed and are filing vigorous protests. It is an anomaly of the situation that the law gives this opportunity to the water lines and motor vehicles, whereas the railroads have no corresponding opportunity to seek public protection against rate reductions on the part of their competitors. Not only are the water lines and motor vehicle operators apprehensive as to what the railroads are doing, but there are clear indications that many of them are apprehensive as to what is happening in their own ranks. Leaving the railroads wholly out of consideration, the destructive competition and instability which are developing in these other transportation industries are matters of public concern.

I cannot anticipate the conclusions which we may reach, but I shall venture certain observations. I entertain little doubt that whatever transportation regulation the Federal Government undertakes should be administered by a single body and not by several, or at least that any division of responsibility should not

(TURN TO PAGE 50, PLEASE)



# 17 STATES FAIL TO AGREE ON A UNIFORM SIZE AND WEIGHT CODE

**O**FFICIAL representatives of 17 northeastern states and the District of Columbia met in Harrisburg, Pa., Oct. 20 and 21, to frame a uniform code of motor vehicle size and weight limits and failed in this very important purpose.

The net result of this widely-heralded Interstate Bus and Truck Conference was incorporated in a resolution of somewhat contradictory implications. This resolution, unanimously approved, excused the failure of the conference by decreeing that 17 states could not come to any agreement on truck and bus sizes and weights because "sentiment and research have not been sufficiently developed."

But then it turned around and resolved that the purposes of the conference should be perpetuated in conferences of smaller groups of states. It left one to assume either that the obstacles to agreement—"sentiment and research"—would not confront the smaller groups or that they had means at their disposal to develop both sentiment and research which the 17 states did not.

One can assume, therefore—although probably not without offending some hyper-sensitive individuals—that the resolution was a palpable excuse for graceful dispersal.

A brilliant attempt to forestall so mousey an outcome for labors which had been expected to be of mountainous proportions was made by the chairman of the conference, Henry W. Toll, executive director of the American Legislators' Association which sponsored the conference at the request of the Pennsylvania State Legislature. The resolution in question recommended "to the various State Legislatures that arrangements be made for properly constituted and authorized delegates to be appointed to conferences of smaller groups of states under the direction of the American Legislators' Association."

Chairman Toll took the position that

## Briefly

**T**HE Interstate Bus and Truck Conference to frame a uniform code of size and weight limits was attended by representatives of 17 states and the District of Columbia.

It was expected that the uniform code recommended by the American Association of State Highway Officials would be the basis of definite and immediate action.

Many of the delegates, however, were not empowered to make agreements for their states. So the conference adjourned, resolving that code conferences be held of smaller, regional groups of states.

This article not only gives an account of what happened but endeavors to analyze the reasons for the failure of the conference to accomplish its heralded purpose.

delegates already assembled were "properly constituted and authorized; had assembled at taxpayers' expense at a time when economy and speed of action are important considerations, and that therefore the thing to do was to act not six months or three months hence—but now."

So as Executive Director of the American Legislators' Association he assumed the power of direction vested in the association by the resolution. He forthwith divided the 17 states and the District of Columbia into smaller groups and gave them a 45-minute recess in which to get together and arrive at uniform code recommendations.

This commendable procedure simply delayed adjournment. The smaller groups met and their decisions merely upheld the resolution. The New England groups, comprising Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut, asked the American Legislators' Association to call a regional meeting at an early date of duly appointed officials empowered to make agreements as to dimensions and weights of motor vehicles, and report back to their legislatures.

New York, Pennsylvania, New Jersey and Delaware took similar action. Virginia, West Virginia, Maryland and the District of Columbia decided that they could work things out without a conference. The middle western group, consisting of Ohio, Indiana, Illinois and Michigan, requested that the first Legislature in session in the region call a regional conference and invite the attendance of Kentucky, Wisconsin and West Virginia.

The American Legislators' Association was delegated to preside and manage these several meetings and to be the coordinating agency between the regional groups.

The true reasons for the failure of the Interstate Conference, if one wishes to seek them, are to be found elsewhere than in the words of the resolution that "sentiment and research have not been sufficiently developed."

The sentiment in favor of a uniform code of sizes and weights needs no development. It is acknowledged by operators, by legislators, by state vehicle administrators and by the nation's press.

Nor was the conference lacking in the results of truly exhaustive research. It had available the finds of 14 years of research by the U. S. Bureau of Public Roads and the results of careful deliberation and of experience on the part of the American Association of State Highway Officials, the latter in the form of a recommended uniform code. That this recommended code had a background which made it most authoritative was clearly stated by H. S. Fairbanks, representing Thomas H. MacDonald, chief of the U. S. Bureau of Public Roads.

"We stand four-square behind the state highway officials' code," he said. "Ten years of negotiation and discussion, and many more years of experience, have preceded the drafting of these proposed regulations. We are wholeheartedly for them."

The Bureau and the Association of



By  
**GEORGE T. HOOK**

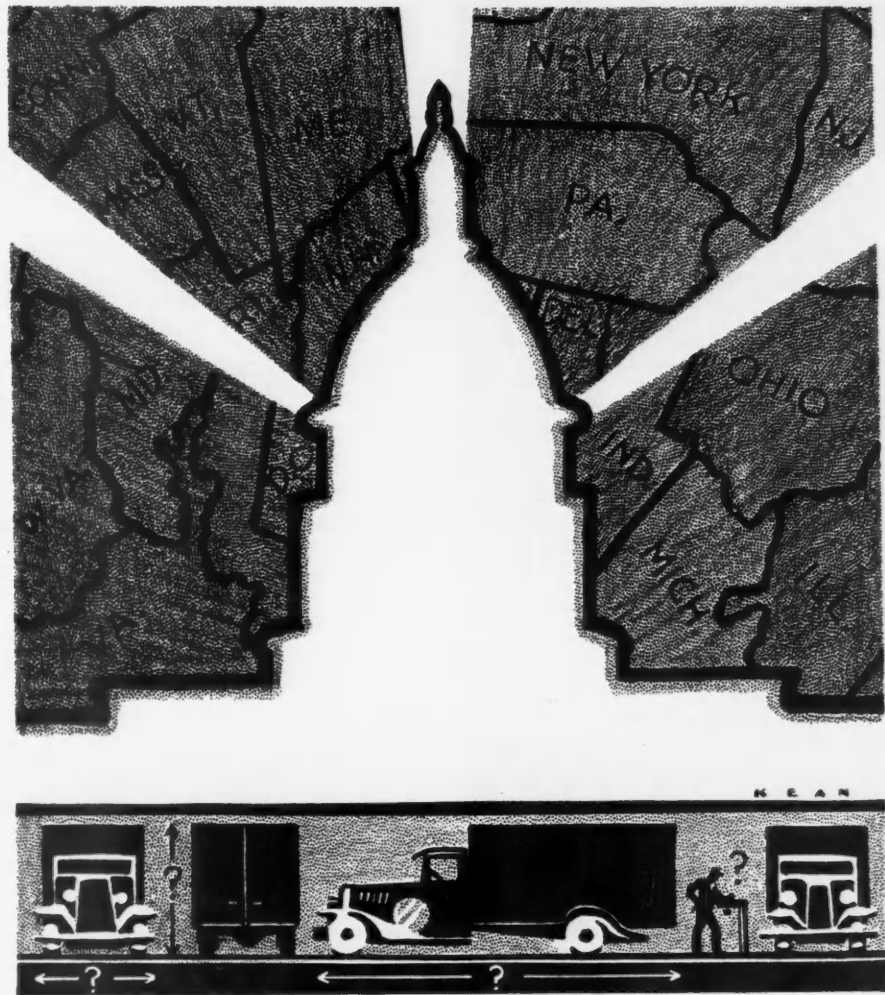
Editor  
*Commercial Car Journal*

State Highway Officials were not the only bodies in favor of this code, which included the following provisions: width, 96 in., with 102 in. temporarily permitted if dual tires are substituted for single; height, 12½ ft.; length overall, 35 ft. for a single unit, a tractor-semi-trailer combination being considered one unit; length overall for combination, 45 ft.; weight per axle, 16,000 lb. on high pressure tires, and 18,000 lb. on balloons; gross weight, governed by the formula  $c(L + 40)$  where "L" is the distance in feet between the first and last axles of a vehicle or combination of vehicles and "c" is a coefficient to be determined, with a value of 700 recommended as the lowest which should be imposed.

The other bodies favoring it were the American Automobile Association, the National Automobile Chamber of Commerce and the National Highway Users Conference representing such highway users as members of the National Grange, American Farm Bureau Federation, American Petroleum Industries, National Chain Store Association, American Trucking Associations, Inc., and National Assn. of Bus Operators.

Even with so excellent a basis for intelligent discussion as the state highway officials' code, the failure of the conference was ordained. Failure was inevitable because the majority of the delegates came without a clear conception of the purposes of the conference, without an adequate grasp of the problems involved and, most fatal of all, without power to propose or support code recommendations. The New England group admitted as much when it asked for a regional meeting of "duly appointed officials *empowered to make agreements as to dimensions and weights of motor vehicles.*"

So that, lacking the power to act as a deliberative body with a clear-cut purpose in view, the conference became the victim of speech-making. The speeches did nothing more than contribute to the lore of opinion on the



subject of truck size and weight regulations. They contributed very little toward realization of the two main purposes of the Interstate Conference. These purposes were set clearly before the delegates in the following words of the official program:

1. What are the desirable regulations for length and weight of buses and trucks? (Five minutes allowed each delegation to state its position. Each delegation is requested to state whether its members favor any existing code.)

2. What machinery will bring about and maintain uniform action of the states? (Five minutes allowed each state delegation for the statement of its recommendations.)

Delegates from only a few states seemed to know what the Conference expected of them. On Question 1 above the New York and New Jersey delegations had specific recommendations, while Illinois declared its restrictions were not far off from the state highway officials' recommended code and that it was in sympathy with that code. The rest of the time devoted to the question was taken up with opinionated speeches.

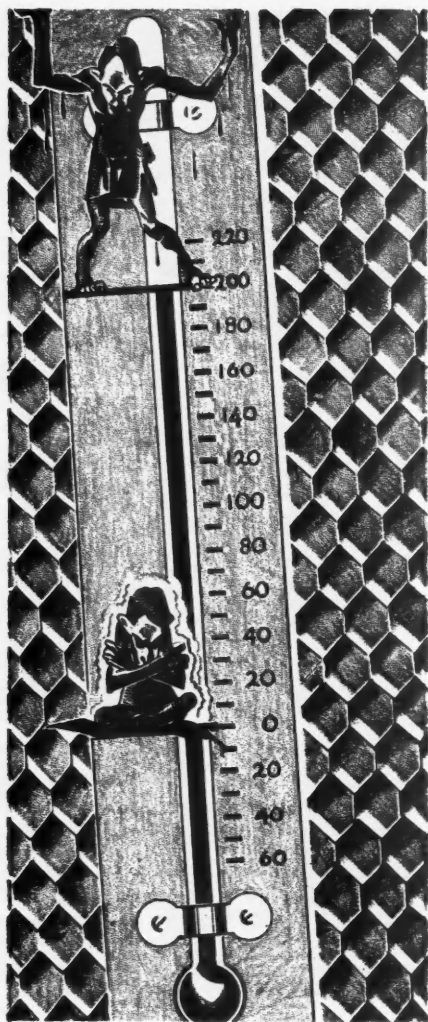
For the record, the New York recommendations were: Not to increase al-

lowable height beyond 13 ft. and not to decrease it to such an extent that it would hamper truck transportation. Width, 96 in., and 102 in. for change-overs. Length—recommended that 33-ft. length for single vehicle be not reduced, and increased to 35 ft. including bumpers; tractor-semi-trailer to be considered two vehicles. That combination length be 50 ft. for new vehicles, and that old vehicles exceeding this length be given five years of grace. Axle load—urged states carefully to consider reducing axle load maximum below 22,400 lb. That any uniform code agreement should contain a grace period permitting the wearing out of existing equipment.

New Jersey's recommendations were: height, 12½ ft.; width, 96 in. overall; length—33 ft. single vehicle, 45 ft. tractor-semi-trailer, 65 ft. other combinations; axle load, 18,000 lb. on high pressure tires and 20,000 lb. on balloons.

The action taken on Question 2 was even more noticeably lacking in specific suggestions. New York suggested that the machinery should consist of three members from each delegation represented, two of the members to be

(TURN TO PAGE 40, PLEASE)



### How Fleet Heads Control Cooling Temperatures

- Eighty per cent of the fleet men taking part in the survey of cooling system maintenance control cooling water temperature.
- Detachable covers received 28 votes, manual shutters 25, thermostats 24, and automatically operated shutters were given 12.
- All of the fleets using glycerine or Prestone control cooling water temperature.

THE advantages resulting from controlling cooling water temperature during cold weather operation of motor vehicles have been pointed out repeatedly and are commonly mentioned in factory instruction books. The recent confidential survey of fleet practice in maintaining cooling systems conducted by COMMERCIAL CAR JOURNAL reveals that approximately 80 per cent of the fleets do control cooling water temperature and that an even one-seventh, 14.3 per cent, definitely do not control cooling water temperatures. The remainder of the fleets did not report on this point.

## Cooling Temperature Is Controlled by Most Fleet Operators

Factories and lubrication experts make out a strong case in favor of controlling cooling water temperature on two grounds: the first, that of avoiding troubles; and the second, the attaining of positive benefits. As one factory puts it: "In winter it is advisable to use a good cover over the radiator which will keep the engine warm, thereby increasing gasoline mileage and better performance."

Another factory speaking of the harmful results of water in the crankcase and corrosion of internal parts says: "We will have the formation of water in the oil reservoir, in a greater or less degree, until the motor becomes warm. When the motor becomes thoroughly warm, the crankcase will no longer act as a condenser and all of these gases will pass out through the crankcase ventilator system. . . . As long as the gases and the internal walls of the crankcase are hot enough to keep the water from condensing, no harm will result; but when a motor is run at low temperatures, moisture will collect and unite with the gases formed by combustion; thus acid will be formed and is likely to cause serious etching or pitting."

That diluting the crankcase oil with unburned heavy ends of fuel is not conducive to best lubrication has been stated by more than one engineer. That dilution is greater during cold weather, or rather when the engine is cold, is obvious.

Manually controlled shutters and detachable radiator covers are the most popular means of controlling cooling water temperature among the fleets taking part in the survey. There is a bit of duplication because many of the

fleets use more than one method, thermostats on some vehicles and manual shutters on others, for example. Detachable covers led with 28 votes, manual shutters were second with 25, closely followed by thermostats with 24, and automatically operated shutters in fourth place with 12 votes. Although there was no provision on the reports for giving reason for using the various methods of control it seems likely that standard equipment supplied by factories influenced practices in at least some of the cases, particularly concerning thermostats.

One fleet which used detachable covers last winter will use automatically operated shutters this year. Two fleets report that they have removed thermostats and a third advised that it was having trouble with thermostats.

Returns in the survey justify the conclusion, tentatively at least, that there is some connection between the type of anti-freeze used and temperature control practice. Which is cause and which effect does not appear. A logical supposition is that fleet managers adopt a program in which means of control and type of anti-freeze are chosen to suit existing operating conditions.

All of the fleets definitely not using any means of controlling cooling water temperature use alcohol as a anti-freeze, except one which used 50 gal. of alcohol and 75 gal. of Prestone last winter. All of the fleets using glycerine or Prestone exclusively control water temperatures as do those using mixtures of alcohol and glycerine.

Most of the fleet managers contributing to the survey conserve anti-freeze (TURN TO PAGE 14, PLEASE)



# Metropolitan Operators View Truck Problems In Frank Light

**B**Y meeting together and swapping ideas and experiences a large number of fleet operators in New York have licked a lot of common problems and they have scheduled many more for the same fate. Those co-operating know why safety committees are needed in large organizations and who should comprise the committee membership. They have agreed that every applicant for a driver's position should be examined physically and decide what information to include in his application. Whether to reward a driver for safety or penalize him for accidents has engaged their attention and they have not overlooked the close tie-up between safety and maintenance.

This group has accomplished these results by simple and effective means available to fleet men generally. There is no elaborate organization and the effort required of participating fleet representatives is kept at a minimum. The group meets once a month at a dinner-meeting starting at 6 P. M. and adjourning on the stroke of 9 P. M. There are no dues, no obligations except to display interest. It is not a chartered association. The identifying name of the group, which is allied with the National Safety Council, is Commercial Vehicle Operators of New York.

Ideas and experiences are swapped by the representatives present by showing hands, as on motions. The secretary counts the upraised hands and the chairman of the meeting announces the results. Everyone takes part at the same time, without interfering with each other. Results of votes are included in the minutes for the information of those not attending and for

reference later by those who do attend. For illustration during one of the early meetings a counting of uplifted palms showed that nine fleets have safety committees, seven do not and five have courts of inquiry for accidents. Seven companies pay committee members for time spent in hearings on accidents, six companies rotate membership of committees. Simple, in truth and effective, no doubt.

Starting out in December, 1930, to consider safety the group took up the question of organization, committees, courts, personnel, etc., as well as accident reports and other records. More than one meeting was taken up by this broad subject. The showing of hands on the question of committees, previously mentioned, took place during this series of meetings. Safety committees were discussed in three succeeding meetings.

During these meetings it was found that 12 companies were using insurance company forms for driver's report of accidents to the management and that eight companies were using their own forms. A sub-committee which investigated this detail recommended the use of two forms; one form giving information needed by the fleet owner and the insurance company and another form giving facts required by the police.

Twelve companies having safety committees organized reported on membership of the committees, six companies include drivers on the committees, the remainder confine committee membership to management. Nine safety committees meet periodically, two of them weekly and the balance more frequently than once a month. All the commit-



## Here Are Some Problems The Fleet Men Solved

- How to reduce accidents by establishing safety committees. How to set up a safety committee.
- Should a driver be rewarded for safety or punished for accidents? At what speed should trucks be governed for operation in congested areas?
- Should the management or the driver decide when to use chains? The question of fleet vs. outside service. Care of tires.

tees meet on company time. In 11 cases the chairman of the committee is selected by the management, in one by the committee. Five of the safety committees' decisions are final, seven of them recommend action to a higher authority.

Reports of accidents were discussed in greater detail in a later meeting. Ten companies indicated that they used a preliminary report and seven advised that they did not. Consensus of opinion was against publishing individual accident reports by a vote of 9 right hands to 16 right hands.

Qualifications of drivers loom large



in any discussion of safety and this subject engaged the attention of one meeting. Those present generally agreed that road tests are advisable as a preliminary to selecting drivers. Eighteen companies require physical examinations for all drivers, 21 require eye tests, 15 check hearing, 11 demand blood pressure tests, seven ask for reports on heart without blood pressure test and nine call for recurring physical tests. Only three do not require physical examination.

Twenty-two fleets give driving tests, nine of them annual driving tests and 15 give them at various intervals. Thirteen of the fleets have inspectors on the road at all times.

### ● **Keep Accident Cards**

Individual accidents record cards, one for each driver, are kept by 22 companies, three keep this information on the individual's personnel history card and only one fleet, in the group attending this meeting, fails to keep an individual accident record.

Classifying accidents involves a large number of items and in this case a questionnaire was sent to participating fleets. Reports were asked on 37 items as being of primary importance, secondary importance or not essential. Opinion favored classifying accidents as to pedestrians and to other motor vehicles, personal injury and property damage, type and cause, responsibility of fleet owner or of others. How to include physical condition of driver on the report brought out a diversity of opinion, some voted to list it under causes, others put it as of primary importance by itself.

Under the heading of "Bonuses for Drivers" the show of hands at another meeting tallied five companies making cash awards for safe driving and low maintenance cost, one making an award for general good performance including safe driving and five presenting certificates or medals. On the other side of the record it appeared that 10 fleets penalize a driver for an accident by suspending him without pay or compelling him to pay for damage.

Maintenance stepped right up to the platform in one meeting under the title of "The Relationship Between Safety and the Maintenance and Mechanical Repairs of Vehicles." Out of which arose the question of fleet vs. outside service which, as readers of *COMMERCIAL CAR JOURNAL* know full well, has been discussed before by others. The elevated hands were counted showing that 18 companies maintain shops for complete repairs including overhauling and three make minor repairs only. The same score resulted on count of hands on periodic inspection, 18 inspect periodically, three do not. Fif-

*Anyone interested in developing an organization similar to the Commercial Vehicle Operators of New York can procure guidance from Julien H. Harvey, National Safety Council, 9 East 41st St., New York.*

teen companies require drivers to report condition of vehicles every day, three do not. One company socks a fine of 25 cents on a driver who fails to report condition of his vehicle. Two companies allow drivers to make minor repairs on the road. The subject was carried over until the next meeting.

A resume of opinions expressed at the previous meeting and those at the second meeting showed that one company with 25 trucks is sending all work out and that three do all work in their own shops except painting. Opinions favored periodical inspection of vehicles, requiring drivers to report mechanical condition of vehicles (28 for, none against), driver's reports on itemized cards, penalties for failure to report defects, permanent record of these reports.

The vote against allowing drivers to make repairs on the road was, in this case, unanimous, two companies going to the extent of prohibiting drivers from changing tires.

Brakes came in for their due share of attention. The general opinion was that hand and foot brakes should be adjusted to equal efficiency. Brake testing equipment had no opponents. It was agreed that no limit should be placed upon the driver's right to refuse to drive a vehicle which he believes to be faulty.

Seventeen companies represented at one meeting use governors on trucks and six companies use them on passenger cars. Twelve companies install governors as a safety measure, one for maintenance reduction. The vote on

## **Cooling Temperature is Controlled by Most Fleets**

(CONTINUED FROM PAGE 12)

solution in some manner; in fact only four of them reported that they did nothing to accomplish this desirable end. Keeping the water level low leads all other methods, so much that it is not a contest. Fifty-nine managers favor this plan, one uses auxiliary tanks and three tinker with the overflow pipe. Of the three one extends the pipe upward near the radiator cap, one seals the pipe and the third squeezes the pipe about half shut. One manager saves anti-freeze by "keeping the engine in perfect condition."

those who install governors for safety and maintenance was 18. One company governs trucks at 15 m.p.h., three at 20 m.p.h. and four between 20 and 25 m.p.h. The management dictates use of chains in five fleets and drivers use their own judgment about putting on chains in the remaining fleets co-operating in this meeting.

Although the raised hand votes are features of all meetings let no one suppose that the whole meeting is taken up with this silent form of voting. On the contrary, brief talks by competent speakers are included in almost all meetings. Following the talk there is informal discussion and the hand raising exchange of ideas and experiences ensues quite naturally.

### ● **Many Safety Ideas**

The general subject of safety, running through most of the meetings, covers a multitude of different ideas. This was shown by the talk by Frank B. Smyth, superintendent of maintenance, General Baking Co., under the title, "Cooperation Between the Safety and Automotive Purchasing Departments—to Promote Standard Safety Equipment." He told of closing left doors of delivery jobs to prevent the operator from leaving the vehicle on the left side, into the traffic, eliminating rear bumpers prized by small boys sneaking rides, and related many other instances of cooperation between safety and fleet departments.

Governors were brought up during the discussion and there was a general exchange of ideas about the best speed at which to govern.

That the Commercial Vehicle Operators devoted one meeting to tires is known to readers of *COMMERCIAL CAR JOURNAL*. The article by J. W. Shields, "Take These Tips From an Expert and Deflate Tire Costs," which appeared in the August issue, was delivered by proxy before a meeting of the Commercial Vehicle Operators. Readers will remember the show of hands vote given in a footnote showing that "most of the operators favored semi-weekly or weekly tests of pressure."

Obviously any subject of interest to a group of fleet men can be discussed after the manner of this New York group to the benefit of all concerned. Fleet men attending the meetings speaking informally to the writer have expressed approval of the plan of short meetings, starting and ending on time; the fact that all present take part without being called upon to speak unless they wish; that there are no binding obligations and no commercialism. An average attendance of more than 42 persons per meeting for more than two years shows that the interest must be and is abiding.



## “We Junk the Old Trucks and Save Good Parts For Fleet Repairs”

**W**E have never traded-in or sold a single one of our worn-out delivery trucks, and that's one of the principal reasons why the operating costs on our fleet of 27 units are held down to less than 5 cents per mile.

Instead of selling or trading in old trucks for a pittance, we junk them and use the good parts to repair other trucks. We get at least twice as much for worn-out trucks by junking them as would be possible in any other way. The maximum that any truck would bring after we are through with it is \$30. We get at least \$60 worth of parts out of such a unit.

We have our own mechanic, who is not kept busy on other work all the time, so that there is virtually no cost involved in dismantling the old machines. And in a majority of cases, the parts he reclaims are practically as good as new after a little bit of salvaging work. Furthermore, the plan is advantageous from the standpoint of saving time and trouble. We always have on hand a stock of reclaimed parts that can be put in at a minute's notice.

Of course this plan is based on the fact that we believe in keeping a truck in service until it is really worn out.

Contrary to the opinions of some fleet operators, we have found this an economical practice. This contention is backed up by the fact that we still have one Model T Ford of 1917 vintage in the fleet, and it is still in fairly good running order. We have a number of '20 models, and costs of operation on them aren't a great deal heavier than on much more recent models. We average a full 150,000 miles on a delivery unit.

The long life of our trucks is probably traceable in a good measure to the kind of work they handle. Laundry loads are light, and all the driving is done in town. For this reason, the parts that wear out most frequently can be replaced at a cost within reason. This is particularly true with us because we get most of our parts from old units. Whether we will continue this policy with later trucks will have to be determined by their life and potential trade-in value, but we have certainly found it a worth-while one with T's.

These policies determine our theory of truck replacement. We buy one or two new trucks at a time rather than a complete fleet at once. “But,” you say, “doesn't the obsolete appearance

● This article deals with a fleet of Ford trucks which is operated on the unique principle that the worth of salvaged parts is twice the trade-in allowance—so why trade the truck?

● Besides explaining this plan of getting the most out of a used truck, Mr. Fitzell takes advantage of the opportunity to discuss other phases of fleet maintenance and to sketch the sort of light delivery truck which he considers to be one of the “crying needs of fleet operation.”



BY GRANT R. FITZELL  
*Assistant Manager  
Ideal Laundry Co., Denver*

of your fleet mean a great enough loss in advertising value to cut down appreciably the amount you save on using old trucks?” It would if we had nothing but “ancient” trucks, but that isn't the case. The units handling the routes where appearance counts most are late models. Our observation is this: one fine appearing new truck will be noticed more than a half-dozen old ones, and hence the public gets the impression that you have a completely modern fleet.

We have six Model A units, two AA's, four B's and 15 T's. Only 23 of these are in regular use, the other four being kept on hand for special deliveries and emergency work.

I feel that one of the crying needs of fleet operation today is a light delivery truck such as is required in the laundry business, with modern lines and transmission but having a considerably lower horsepower—something around that of the Model T Ford. I know that we would jump at the chance to buy a truck which would actually produce 25 miles to the gallon at a maintenance cost in the neighborhood of that on T's. As I see it, modern trucks have too much power for light hauling, not only from the standpoint of gas consumption but also from the standpoint of general efficiency.

We have governors on all of our Model A units, and they are unquestionably desirable if not absolutely

(TURN TO PAGE 32, PLEASE)



*Trucks overcame every hazard*

## TRUCKS PLAY A LEADING ROLE IN BOULDER DAM DRAMA

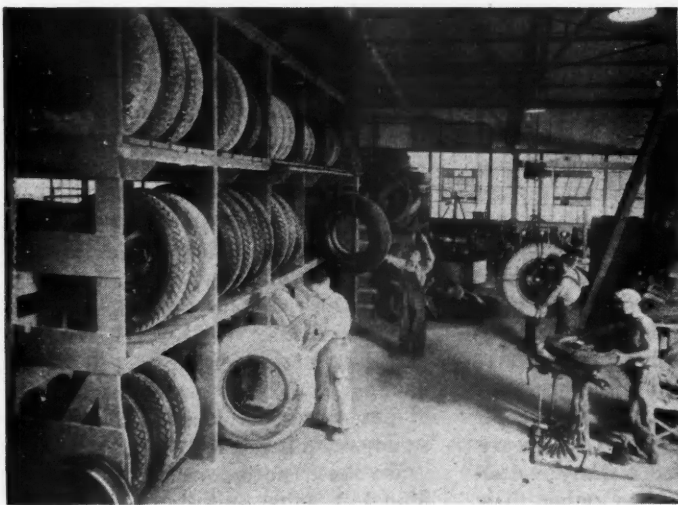
**E**VERY single thing in any way connected with Boulder Dam is of such colossal size that one quickly becomes confused by the enormity of any figures quoted regarding it. The newcomer, on arrival at the top of the rim of Black Canyon where operations are centered, is awed by the great heights, depths, and widths of the topography spread out before him, as well as by the size of almost every item of equipment and the quantities of this and that involved in this tremendous project. Very soon he is bewildered in his efforts to recall or quote any figures previously told him, not certain whether it was hundreds of thousands of acre feet, millions of

Prove themselves miracle of transportation by helping speed work one year ahead of schedule. Investment in 200 trucks placed at nearly a million dollars. Total mileage for 2 years of terrific grind estimated at two millions

cubic yards, or billions or trillions of something else. Yet, quite as suddenly and without any conscious knowledge of the transition, he is taking a most matter-of-fact cognizance of operations

which, had they been described to him but a few hours previously, would have seemed impractical as well as impossible; taking for granted the feasibility of accomplishments so gigantic in proportions that the human mind can hardly conceive of them; so smoothly does everything progress in this hotbed of human and mechanical activity. For, unquestionably, Boulder Dam is one of the largest, greatest, and most remarkable ever attempted.

The part that modern motor trucks are taking in this work is a most important one. Although he has no data either to confirm or deny it, this writer boldly affirms that without motor truck equipment of such high effi-



*Interior of tire shop in Six Companies Inc. Garage in Boulder City, Nev.*



*Interior view of the Six Companies Inc. Garage and automotive repair department*





*Black Canyon—showing excavation in the pre-historic bed of the Colorado River*

ency as we have today, the project would have been an impossible task. If possible of accomplishment at all, the work at least would have required many years additional time. After all, Boulder Dam is an \$165,000,000 construction job, the largest contract ever let by the Federal Government up to that time.

The work is more than a year ahead of the original schedule now, and the speed at which it has progressed is a magnificent tribute to human ingenuity and skill, modern science and invention, and the miraculous performance of mechanical equipment. The modern truck commands a very large share of the credit for this achievement.

Visualize, if you please, the working, handling and moving of millions of cubic yards of earth and rock, (the estimated total of all excavations is said to be in excess of 60 million cubic yards); and well over fifty thousand tons of steel, conduits, pipe and other materials; such, for example, as nearly four million cubic yards of open-cut, tunnel and shaft excavations; four and one-half million cubic yards of concrete; over 30 million pounds of metal conduits; 20 million pounds of gates and valves; 18 million pounds of structural steel; and about 35 million pounds of reinforcing steel; and you will have a very good picture of the task that faced these intrepid engineers and builders.

Hauling of the required materials for this gigantic construction job, to the rim of Black Canyon from Las

Vegas, 30 odd miles of rough country without even crude wagon roads before this work began, and thence a thousand feet down sheer cliffs into the canyon bed; the removal of earth, rock and debris from the canyon bed, tunnels and shafts; transportation of workmen by the thousands to and from various locations on the project; in temperatures ranging from around zero in winter to 120° or more in the shade (where there is no shade) during the hot summer months; all necessitated thousands of horsepower of such individual capacities, speed, flexibility, maneuverability and stamina as only the most modern iron horses possess.

The investment in trucks alone is authoritatively said to be just a few thousand short of a round million dollars, representing more than 200 individual vehicles. (More than 300 automotive vehicles of all types are regularly employed on the project.) The list of trucks includes time-honored names. The trucks are equipped with various types of bodies, including flat-bed, transport, standard, pick-up, and dump, ranging up to 16 cubic yards in capacity. Other vehicles include the standard passenger models for officials and executives, hospital ambulances of the very latest types, and buses for the transportation of groups of workmen which greatly remind one of the "rubber-neck" wagons of the metropolitan cities.

The trucks are used in practically all phases of the work, such as road-building; excavating; tunneling; hauling

earth, rock and debris, construction materials, equipment and supplies; and for the transportation of workmen. Many have various types of equipment permanently mounted upon them, such as drilling jumbos, pumps, hoists, pressure grouting pumps, cranes and concrete mixers. These are dispatched to various points as needed, at nearly taxi speeds. It is quite common indeed to see one of the largest of these vehicles, mounted with some type of the aforementioned equipment, picked up bodily by one of the immense cableways and shot from one side of the canyon to the other, or set down in the river bed or upon one of the narrow ledges almost a thousand feet up the steep canyon walls, with uncanny precision and incredible speed. There are seven of these permanent cableways spanning the canyon at the base of operations, two of which are the largest ever built in capacity (150 tons), and in length, operating more than half a mile.

Mechanical operation and maintenance of the dump trucks are under the supervision of the transportation department, which also has jurisdiction over the drivers, mechanics and other truck personnel; while the actual use of the trucks is under the direction of the excavating department. Individual vehicles or entire fleets, including the operating personnel, are requisitioned from one department by the other much as if being rented or contracted. Any problems or difficulties encountered which involve either department separately are handled by that depart-

ment; those involving both departments are fought out by the superintendents of these departments; and some notable battles have been recorded. Trucks of different types used for other purposes are handled in much the same manner.

Shops equipped with modern machines and tools, and manned by expert automotive mechanics, are maintained in order to keep the trucks moving at top speed with highest efficiency. Every vehicle in the entire fleet is kept in first class condition at all times. Each one is numbered, and a detailed record of its operation and maintenance is faithfully kept. Most of the servicing and repair work are done in shops located at both ends of the canyon. At this writing an immense repair station is located on the upper cofferdam, where long lines of these big moguls are stationed and facilities are complete for servicing, repairing and practically rebuilding large numbers of the vehicles every day.

#### ● Brutal 24-Hour Service

How they worked these trucks during the first 18 months is a record that will go down in automotive history. Every vehicle moved at top speed every minute of the 24 hours, especially during the peak of the excavating and tunneling operations. Up hill and down, and on the level, they were pushed to the limit over a network of roads winding through the canyon bed, up and down the canyon walls, around North Portal, through Boulder City and on to Las Vegas 30 miles from the dam, stopping only for service and repairs. What a roaring, thundering herd of iron horses they were. From the upper rim of the canyon they resembled long lines of gigantic beetles, pushing on the tail of one another at full speed, throbbing with energy and power of which there seemed to be no limit. The manner in which the work sped along is astounding. In just two years of actual operations the entire project is more than a year ahead of the original estimate of procedure. Mass concrete construction of the dam was first scheduled to start in December, 1934. Pouring of this concrete actually started around June 1, 1933, approximately 18 months ahead. All other operations are similarly in advance of early estimates.

A large part of the original work, of course, consisted of excavating for and building road beds. Trucks, big ones were required to get equipment and men over broken ground and up impossible grades before the roads were built. But the equipment had to be moved, much of it all the way to the site of the dam, roads or no roads. And

they did it. They not only accomplished these herculean tasks; they accomplished them in record-breaking time, due in no small measure to these modern iron horses.

The dump trucks doubtless are the most interesting vehicles on the project. The big ones are the largest single automotive units this writer ever has seen. They are equipped with special designed bodies built of heavy beams and sheet steel, designed by engineers of The Six Companies, Inc., especially for hauling extra large quantities of earth, rock and debris, and have load capacities ranging from 6 to 16 cubic yards. For the edification of those not accustomed to reckoning in cubic yards, may we point out that, using set cement as an example, which weighs from 170 to 190 pounds per cubic foot, the body capacities of the largest of these trucks would range up to as high as 40 tons.

The drivers are veritable artists at operating and maneuvering these immense vehicles. They come roaring on to the dump site at top speed, swing around in a wide circle without perceptibly slowing up, wham goes the shifting mechanism, and with a thundering roar they are backing up to the cliff almost before they come to a full stop forward. Inevitably they are in a direct line with the edge of the dumping point, which oftentimes is a sheer cliff hundreds of feet up the side of the canyon walls. The backing and dumping are not as slow and cautious as one would naturally suspect, but extremely efficient to be sure. Back they go, swiftly, right to the edge of the cliff, the driver standing and looking back toward the dump with one hand on the steering wheel just long enough



*Driver, truck and signalman at dump*

to make certain that his direction line is correct. Then he slips back into the seat and watches the dump attendant for further instructions. As the attendant's hand drops downward, indicating that the rear wheels of the vehicle have reached the designated spot, (the word is used with due consideration), the driver throws on the air brakes and starts the dumping

mechanism almost simultaneously. The body tilts swiftly as the vehicle comes to an abrupt, harsh stop, the material is dumped, and the truck moves speedily away amid a deafening roar of the motor. All is done so quickly that it is not at all easy to visualize each separate operation.

Truck drivers on the Boulder project undoubtedly represent as fine a group as can be assembled together anywhere on earth. Most of them are between 25 and 35 years of age. The rate of pay ranges from 50 to 75 cents an hour. They acquire their expertness through rigid trial and training that leaves no doubt whatever of their ability. Discipline is very strict, both during the training period and when regularly assigned to driving service. It has to be. Any mistake in this class of service is a serious one. Extreme care is exercised in the selection of new drivers and a man really has to be good to get a truck—and keep his wits about him at all times in order to hold it. The small labor turnover in truck personnel is a tribute to the selection of men,

#### ● Tires Are Not Rebuilt

Both pneumatic and solid rubber tires are used on the automotive equipment, depending on the character of service involved. Boulder Dam long has been recognized as the White Hell For Tires, due to the size of the equipment, loads carried, road conditions, heat, and other service conditions and requirements. It is stated that each tire, like the motor vehicle on which it is used, is numbered and individual records kept of its service, performance, mileage and repairs. A complete tire shop, fully equipped with the most modern machines and tools, is maintained to keep all equipment rolling. Damaged tires are repaired as required, and used until worn out, but are not rebuilt; indicating that the company does not consider this method of obtaining mileage very profitable, or desirable.

The mileage traveled by the automotive equipment runs into high figures also. One who is recognized as an authority on the subject estimates that the entire truck fleet has traveled more than a million miles to date. This writer's guess is nearer two millions. The work has been going on for two years now, day and night, and at top speed. Two million miles would only be about 25 miles per day of 24 hours for 200 vehicles operating but 60 per cent of the time, or 87,600 truck days.

And the motor truck has stood up under this terrific grind like the thoroughbred it is—truly the modern iron horse of an ultra modern age.



### Sh-h-h! Come Closer

HOW would you like to have available a fuel costing  $3\frac{1}{2}$  cents per gallon which could be used in present gasoline engines with very slight changes, and which would give a 25 per cent increase in mileage per gallon over gasoline?

### Not a Pipe Dream

This isn't a truck operator's pipe dream. Our West Coast sleuth reports that it is an actuality and that the few fleet operators out on the Pacific Slope who have been experimenting with this veritable heaven's gift to the harassed trucking industry are highly enthusiastic about it.

### A Two-Fold Blessing

In fact, in the experiments now going on this remarkable fuel is conferring a two-fold blessing: it is first of all furnishing cheap refrigeration for truck bodies and then, after serving this important purpose, instead of passing out into the atmosphere as waste it is passed through a special type of carburetor and converted into automotive power.

### Put Out by Shell

This incredibly efficient fuel, to relieve you from further suspense, is known as butane gas. It was put on the market originally as a refrigerant by the Shell Oil Co. That was two years ago and it was mentioned then in this publication in April, 1932, issue. (If you have this issue on file and want to look it up, see pages 17 and 52.) It was recognized then that butane possessed powerizing properties.

### Special Carburetor

However, its efficient use as an engine fuel was not satisfactorily realized until a special carburetor was developed by the Ensign Carburetor Co. (Address on request.) We are not familiar with the design details but we are told that it embodies a very simple arrangement of valves.

### Truck Maker Cooperates

The experiments on the West Coast have the active cooperation of one of our largest truck manufacturing companies. This company took its own gasoline engines and made the changes necessary to get the full benefit of butane.

### Compression 6 to 1

The chief change necessary was to effect an increase in the compression ratio, making it 6 to 1. The head, pistons and valves underwent a change. Nothing was done that might be considered a major operation. The engine remains, in principle and in fact, a gasoline type.

### No Adverse Comment

So far the experiments have been highly satisfactory in every respect. Question-



The Indiana multi-drive model uses double-reduction full-floating Wisconsin axles front and rear. A 94 hp. engine and 109 to 1 gearing drive it.

## THE EAR- TO-THE- GROUND DEPARTMENT

ings by our sleuth about the effect on maintenance and power-developing characteristics produced no adverse comment. And the butane gas is giving a 25 per cent increase in mileage per gallon.

### Fuel Distribution Affected

We are informed that practically every major refinery has known of the possibilities of butane gas. We assume that development work has progressed cautiously for many obvious reasons. One of these, which may not readily occur to you, is that the present method of dispensing fuel by means of pumps would be made obsolete.

### Comes in Containers

Butane would have to be distributed in containers, specially constructed and doubtless refillable. It cannot be stored in tanks as is gasoline. This, as we foresee it in our present speculative mood, would not do away with the present gasoline service stations but would merely result in changing the method of performing their prime function of distributing fuel. And, of course, the storage facilities would have to be shifted from underground to the surface unless the refiners found it profitable to convert their present storage tanks into storage cellars.

### Fuel Tank Obsolete

It would also do away with the fuel tank on vehicles as we now know it. With butane the refillable container would be the tank and provision would have to be made only for its storage

on the vehicle. Thus "gassing up" would consist of replacing the empty container with a full one.

### Effect on Diesels

Our speculative mood also extends to the possible effect of this new automotive fuel on diesel engine development. Bearing in mind the low cost per gallon and the statements that it can be used in the present types of gasoline engines with an increase in fuel efficiency, butane unquestionably represents a menace to diesel development. It is impossible to entertain a contrary opinion since apparently the new fuel possesses the ability to account for practically all the virtues now attributed to the gasoline and diesel types of engines.

### An Air-Conditioner

And while we're speculating perhaps we shouldn't overlook the fact that since butane is a refrigerant in addition to being a fuel, it may be possible through proper control of its coolant property to render truck cabs and closed passenger cars more comfortable by means of air-conditioning.

### The G. M. T. Camel-Back

Although public announcement has not yet been made we have some details of the General Motors Truck engine-under-the-seat job mentioned here in September as on the way up. Here they are: the entire engine is front-removable on rollers, a complete change of power plants being possible in 15 minutes; valves can be ground and carbon cleaned by removing the top of the engine from inside the cab; a wheelbase as low as 96 in. will be available; the front-end design is the work of the artistic man who was responsible for the appearance of those smart tractors you saw pulling passenger trailers at the Chicago Fair.

### A Tip Materializes

Back in July this department tipped you off that a prominent manufacturer of trucks would make a very interesting announcement in September. There was a slight delay, for which you can't blame us, but you'll find the announcement on pages 34 and 35 of this issue. The manufacturer is the White Co.

### Two Ford 8's Coming

Ford, says our Rumor Bureau, will have two V-8's at N. Y. show time. Present 8 will be revised and sell at same price. A smaller 8 will be priced to compete with Chevy's standard.

### A Sterling Camel

Sterling is preparing to announce a camel-back job. On the experimental jobs it was reported that an unusual feature contributing to greater accessibility of the engine was an arrangement whereby the cab could be tilted out of the way.—G.T.H.



# REVISED TRUCKING CODE PERMITS RATE CONTROL BY THE INDUSTRY

## Code Developments

**H**EARINGS on the Trucking Industry Code will begin Nov. 16 in Washington.

● The revised Trucking Code takes in all truck owners with certain exceptions, provides a 48-hour week, permits rate control and establishes a sliding scale of minimum wages ranging from 20 cents to 50 cents an hour.

● A ruling made under the Motor Vehicle Retailing Code forbids dealers to give discounts to fleet operators.

● The Truck Retailing Code when submitted is expected to permit fleet discounts on trucks above  $\frac{3}{4}$ -ton capacity and on parts.

**W**HILE the motor truck retailing code conferences developed no agreement during the last 30 days, the trucking code underwent a rather thorough revision, the final one before the official N.R.A. hearing scheduled for Nov. 16. The hearing will begin at 10 a. m. in the Commerce Building, Washington, D. C., and continue until completed.

The vital parts of the Trucking Industry Code, submitted by the American Trucking Associations, Inc., which claims to represent 52 per cent of the industry, are published below.

Meanwhile an important official ruling by F. W. A. Vesper, chairman of the National Control Committee of the motor vehicle retailing trade, declared that fleet discounts on cars and commercial vehicles up to  $\frac{3}{4}$ -ton capacity were out. His interpretation of the code was as follows:

"It will be considered a violation for any retail dealer to sell new cars at a discount except as provided under code rules for clean up of models being discontinued. It will be considered a violation if any retail dealer is a party to a fleet transaction whereby he takes in the used cars offered in trade or assists in the delivery of the new cars at a discount which in any manner reduces the amount of his regular dealer's retail discount as applied to individual retail transactions."

This ruling, if approved by N.R.A., creates a perplexing problem because factory opinions generally are that fleet owners are entitled to discounts. However, they hesitate to adopt the policy of direct shipment from factory to fleet operator because that practice would involve valuation of trade-in and disposal. The question of who would be responsible for service also would have to be answered.

It is understood that clauses permitting fleet discounts on trucks above  $\frac{3}{4}$ -ton capacity and on parts for same will be included in the code of trade practices which are being formulated by truck manufacturers.

## The Trucking Code

### SCOPE

**T**HE Code takes in all truck owners, except to the extent that they may be covered by other codes, engaged in transportation of property over publicly used roadways. It excludes the farmer who transports his own property, produce or supplies.

### ADMINISTRATION

**A**DMINISTRATION of the Code shall be by a National Code Authority set up to cooperate with the Administrator of the National Industrial Recovery Act.

The National Code Authority shall consist of seven members selected by the members of the Regional Code Authorities.

The National Code authority shall divide the nation into appropriate regions, each containing two or more states, and divide these regions into divisions. For each region there shall be a Regional Code Authority consisting of not more than seven members who shall be elected by the Divisional Code Authorities—each Divisional Code Authority having four members or such other number as the Administrator may approve. The Divisional Code Authority shall be elected within 60 days after the effective date of the Code by the members of the Industry in each division who have registered within 30 days after the effective date of the Code.

In addition the National, Regional and Divisional Code Authorities may each contain three representatives appointed by the Administrator to serve without cost to the Industry. They shall be without vote.

The National Code Authority shall have powers and duties which it may exercise

through the Regional or Divisional Code Authorities. It shall adopt by-laws and rules and regulations for its procedure; receive complaints of Code violations, make investigations, provide hearings and adjust the complaints; obtain from members of the industry periodical reports for use by the National Code Authority and the Administrator in the administration and enforcement of the Code and for the information of the President of the United States, and to give assistance to members of the Industry in improving methods. All individual reports shall be kept confidential and only general summaries may be published.

It shall recommend to the Administrator within 90 days after approval of the Code a uniform system of accounting which upon approval shall be used in furnishing the reports by members of the Industry.

### HOURS

**N**O employee shall be permitted to work in excess of 48 hr. per week averaged over six weeks.

This does not apply to employees engaged in a managerial, supervisory or executive capacity who receive \$35 per week or more in the North and \$30 or more in the South, outside salesmen, solicitors, station managers and watchmen. Drivers specifically are excluded from this group.

Maximum hours shall not apply when seasonal, emergency or other special demands, including the moving of crops and other perishable products make necessary an adjustment of such maximum hours. In such cases the appropriate Code Authority may prescribe the number of hours necessary and permit their application.

No employee shall work in excess of 16 consecutive hours in any one 24-hr. period. After 16 hr. on duty he must be given at least 10 consecutive hours off duty. The aggregate number of hours in any 24-hr. period shall not exceed 16, in which case the off-duty period must be at least 8 consecutive hours.

Drivers or helpers operating on scheduled hauls over fixed routes, compensated on a mileage, trip or daily basis, as distinguished from an hourly basis, shall be deemed to have worked only as many hours as the scheduled haul should reasonably take.

All time spent by any employee on or in any vehicle shall be considered time



worked, unless he is a relief employee off duty on a vehicle equipped with a sleeping compartment of a design approved by the National Code Authority.

#### WAGES

**I**N the North no employee engaged in driving a vehicle or as a mechanic shall be paid less than (a) 50 cents an hour in cities of 2,000,000 population or over or in the immediate trade area thereof, (b) 45 cents in cities of 2,000,000 to 200,000, etc., (c) 40 cents in cities of 200,000 to 250,000, etc., and (d) 35 cents in towns or places under 2500.

In the South the minimum wage in each of the above classes shall be 10 cents lower. A population of 1,000,000 is substituted for the 2,000,000 above.

No office employee shall be paid less than (a) \$15 per week in any city over 500,000 population or in the immediate trade area thereof, (b) \$14.50 in cities between 500,000 and 250,000, etc., and (c) \$14 in cities or places under 250,000, etc.

No other employee shall be paid less than 35 cents per hour, except in the South where 25 cents is applicable to cities of over 2500 and 20 cents to towns and places under 2500.

The point of origin of the principal freight movement shall determine the application of provisions based on population.

The minimum rates of pay shall apply regardless of whether an employee is actually compensated on a time-rate, piece-work, mileage or other basis.

In no case shall an employee's hourly

rate be reduced if his hours of labor have not been reduced by this Code.

No employee whose normal full-time weekly hours for the week ending June 17, 1933, are reduced by less than 15 per cent shall have his full-time weekly earnings reduced. If the weekly hours are reduced by 50 per cent or more, earnings shall not be reduced by more than 25 per cent, if the hourly reduction is in excess of 15 per cent, earnings shall be adjusted proportionately.

The above shall not apply in territories where there is competition with any form of property transportation outside the Industry which shall have in effect reductions or alterations in tariffs "to meet truck competition" so long as such a condition exists.

Apprentices shall be paid not less than 80 per cent of the minimum wage applying to their occupation. Their apprenticeship may not exceed eight weeks and their number not more than 5 per cent of the total number of employees.

#### GENERAL PROVISIONS

**P**ERSONS under 16 shall not be employed. The limit is 18 for occupations that are hazardous or dangerous to health.

Employees shall have the right to organize and bargain collectively.

#### REGISTRATION

**E**VERY member of the Industry shall within 30 days after approval of the Code, or within 10 days after becoming a member of the Industry, register. Details

of registration shall be prescribed by the National Code Authority. A registration certificate and insignia will be issued. Failure to register within 45 days after approval will be a Code violation.

#### RATES AND TARIFFS

**W**ITHIN 45 days after approval of the Code each member of the Industry shall file, either individually or in a trade agreement as provided below, a schedule of bonafide minimum rates and tariffs. Schedules for operations within any one division shall be filed with the Divisional Code Authority, and schedules for operations between divisions shall be filed with the Regional Code Authority.

Minimum rates and tariffs, and practices in connection therewith, may be formulated by trade agreements among the members of any territorial or natural group of the Industry. Such rates and tariffs shall be (a) directly related to and not more than rates and tariffs prescribed or approved by or on file with an appropriate State Regulatory Body for transportation by members of this industry or (b) directly related to and not more than existing rates and tariffs of competing railroad services.

Such groups as cannot relate their rates and tariffs may formulate trade agreements in which the lowest reasonable cost of the service shall be the basis of rates and tariffs.

Reasonable cost of a service shall include an owner-operator's salary.

#### TRADE PRACTICE RULES

**T**HIRTEEN unfair practices are listed as Code violations. Important among them are the following:

No member of the Industry except those operating under the paragraph dealing with trade agreements on Rates and Tariffs shall sell any service below its lowest reasonable cost. However, any member may meet the price competition of anyone whose costs under this provision are lower. (Determination of the lowest reasonable cost will be prescribed by the National Code Authority.)

No member shall secretly offer or make any payment or allowance in the form of money or otherwise or grant any special service or privilege for the purpose of influencing a shipment.

#### DEFINITIONS

**T**HE South shall include Maryland, Delaware, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Missouri, Mississippi, Arkansas, Louisiana, Oklahoma, Texas, New Mexico, Arizona, California south of the Tehachapi Mountains, and the District of Columbia.

Population figures shall be those of the 1930 Federal Census.



## Gasoline Bonus Systems Cut the Cost of Fuel and Maintenance

**M**ANY large British fleet operators have proved, to their own satisfaction, the value of paying a bonus to their drivers on the amount of petrol used. Perhaps the word "saved," should be substituted for "used," as obviously the success of the system depends on the quantity of petrol a carefully driven vehicle consumes, compared with one operated with no consideration given to petrol consumption.

Apart from the saving of petrol, a well planned bonus scheme has the advantage of ensuring that the vehicle is not over-driven, high r.p.m. and harsh braking being avoided. All these factors tend to reduce maintenance, so an operator is doubly rewarded for the bonus payments he makes.

Before any scheme is launched, it is necessary to be certain that the system of recording mileage and petrol consumption is accurate and simple. Particular attention must be paid to the method of filling up, as an error of half a gallon may be sufficient to rob a driver of his rightly earned bonus. Many operators use an accurately calibrated dip stick which is kept by the petrol pump, rather than rely on the gage which may be fitted to the tank of the vehicle. Every vehicle should stand on the same spot when it is filled,

● Here are two bonus systems which are typical of those in use by British operators. In applying the ideas American fleet men should remember that in England the cost of gasoline is around 40 cents.

*By R. W. Bent, Examiner to Ministry of Transport*

so that errors due to floor slope are obviated.

Turning to actual examples of systems in use, the first is that of a company operating over 400 vehicles on fixed routes, consisting mainly of city services. Only three types of vehicles are employed, so it is a simple matter to fix an average consumption figure for each type. Additionally the routes differ in the amount of gradient, etc., so that a variation is made in the bonus figure depending on the severity of the route. This may sound a little complicated, but in actual practice each route is confined to one type of vehicle,

so that there is only one bonus figure per route.

In order to ascertain whether the bonus has been earned, the total mileage and petrol used on each route is calculated, and if the basic figure is reached, an amount which averages .05 pence per mile is paid each driver working on that route. For every additional quarter m.p.g. an extra sum, averaging .04 pence per mile is paid. An actual example will make the principle clear.

Route, A-B; bonus figure, 6 m.p.g.; amount, .06 pence per mile.

Number of drivers on route	10
Total Mileage (one day)	1500 miles
Petrol	245 gal.
Average	6.12 m.p.g.

Bonus earned: Each driver will receive .06 pence times miles he has covered.

The chief feature of this system is that the drivers must cooperate if a bonus is to be earned; one black sheep will ruin the result. At the same time it rewards the driver covering the longer mileage, to a greater extent than one who may be on a short mileage yet put forth just as much effort to achieve economical running. Nevertheless, for the conditions of service (TURN TO PAGE 32, PLEASE)





## Truck Drivers Aren't Saints But Then They're Not Devils Either

I'M feeling testy about the way public feeling has been wrought up against the truck driver and how one-sided the case is presented. I have yet to see anyone make a real effort in his defense. I have been riding the long distance jobs, particularly milk, quite a bit and I am confident that the average truck driver is a much abused fellow and not at all the rowdy, unthinking road hog usually pictured.

He's slow and holds up traffic—because we as the trade have oversold the job and his boss overloads it.

He stays in the middle for a number of reasons—you annoy him, honking, he's afraid of soft shoulders and it's a small brain in a big job—some psychologist can figure that out.

He drives fast and "rolls" hills because he has to get it in, he's tired, it's a thrill and he's late.

In addition to the above, they're out too long. I've seen and ridden a job where the driver worked 16 hours a day, six days a week, for \$24.

Another case in New York—out every other night at 7, back the next evening to the creamery at 8 and if you're lucky you'll have the truck unloaded and garaged at 11 or 12. This every other day if you've brought the job in OK and not been too fussy about squawking about the brakes,

● In this article a man who sells trucks comes to the defense of the men who drive them. He points out that some of the black with which the man-behind-the-wheel has been painted belongs elsewhere.

*By A Truck Factory  
Transportation Engineer*

power, etc. Anyone out that long isn't alert and it would take a mighty affable nature to move over for Mr. Milquetoast. He's one thing they can lick but they can't lick those jobs. Competition is very keen for truck driver's jobs.

They're just like children, some have the mentality of children, and, like my kids, after bedtime they're petulant, fussy and not easy to get along with generally. Yet a smile and a wave and they're your pals. They're confirmed "wash-women"—get in a coffee joint together and chew the rag and then out and roll like hell.

For years we've roasted them in cabs on poor cushions and given them jobs that couldn't get out of their own way. I know how I feel after I've just sat alongside of them for 24 hours. I'm sure the truck industry in general would profit by giving the driver a break, listening to his complaints, shortening his hours and making him less and less the guy you go by at 55, looking at out of the corner of your eye and a dirty word on your lip.

And they're not all big and tough. The best truck driver I know has a crippled leg and he's the best in a big outfit of which you know.

If they're tough, nine times out of ten the job made them tough for the few reasons I've noted. They're mostly fellows with meager education and are veritable Robinson Crusoes—for hours at a time couped up in hot, evil smelling cabs, yet the average motorist considers them as an evil and guiding adjunct of a wicked monster, although I know and can prove that they're human and live, eat, get sick, dream and die not unlike the fellow in the back seat of the Lincoln who is annoyed when they can't make 20 tons get up and fly.

If you have a chance look them over as I have. I'm sure, taken generally, you'll see them as I do.

# A Request from the Federal Coordinator of Transportation

## EDITOR'S NOTE

*IT was intended that this page be devoted to editorial comments under the customary title "After Hours." But along came Mr. Eastman with a request far too important to ignore even though it arrived long after the publication dead-line. So in place of the editor's comments we give you Mr. Eastman's request.*

*We urge that you give him your answers to the questions he asks. He must get a truck viewpoint, no matter how biased, in order properly to evaluate the biased opinions expressed by competing forms of transportation and their eloquent supporters.*

THE Coordinator is announcing through the press his desire to elicit from interested shipper and trade associations, organizations of transportation agencies, boards of trade, chambers of commerce, etc., and individuals, such comment, together with pertinent factual data, as they may care to make on any or all of a number of questions relating to Federal transportation legislation.

Any group or individuals desiring to respond to these questions or on any other significant matter, are urged to do so at as early a date as possible and not later than December 1. Comments may be in the form of a letter or brief. Briefs may be in printed, mimeograph or typewritten form.

Address your communication to Joseph B. Eastman, Federal Coordinator of Transportation, Washington, D. C.

If briefs are mimeographed or printed, please file ten copies; if typewritten, please file not less than three original or carbon copies.

### A. Regulation of Competing Forms of Transportation

1. Should rail, motor and water transportation enjoy equal opportunities of competition in so far as Federal regulation is concerned?

2. Should equality of opportunity, if it is to be sought, be brought about (a) by applying to motor and water transportation the present degree of Federal rail regulation, (b) by releasing the railroads from much of the present Federal regulation and leaving all agencies largely free of such regulation or (c) by somewhat relaxing present Federal rail regulation and applying to motor and water transportation a comparable degree of Federal regulation?

3. Assuming no similar regulation imposed on motor and water transportation, should Section 6 of the Interstate Commerce Act be modified to permit railroads to make changes in rates, fares and charges on not less than 5 days' notice where deemed by them necessary to meet competition of unregulated carriers?

4. Assuming no similar power over rates of motor and water carriers, should Section 15, paragraph 7, of the Interstate Commerce Act be modified to exclude the Commission's power of suspension whenever rate changes are filed to meet competition of unregulated carriers?

5. Assuming no similar power over rates of motor and water carriers, should Section 15, paragraph 1, of the Interstate Commerce Act be modified to remove the Commission's power over

minimum rail rates in relation to the competition of unregulated carriers?

6. Assuming no similar inhibition on motor or water carriers, should Section 3 of the Interstate Commerce Act be modified to permit the establishment of special competitive commodity rates on such commodities and at such locations only as deemed necessary to meet the competition of unregulated carriers and independently of rates on similar commodities between the same points or of rates on the same or similar commodities between other points or territories?

7. Assuming no similar restriction on motor or water carriers, should Section 4 of the Interstate Commerce Act be repealed, retained as at present, or modified in the direction of either more rigidity or more flexibility?

8. Should those paragraphs of Section 5 of the Interstate Commerce Act commonly known as the Panama Canal Act be repealed?

9. Should the Inland Waterways Corporation Act, as amended May 29, 1928, be amended so as to permit the railroads and persons connected with the rail carriers to acquire by purchase or lease any of the facilities of the corporation upon the giving of satisfactory assurance that such facilities bought or leased will be continued in common-carrier service?

10. Should Section 16, paragraph 3, sub-sections (a), (b), (c) and (d) of the Interstate Commerce Act be amended by reducing the time limits for the filing of claims for overcharges, for the filing of suits for reparation and for the filing of carriers' suits for recovery of their charges, and if so what new periods should be fixed?

11. Should Section 16, paragraph 2, of the Interstate Commerce Act be amended to eliminate the part thereof which provides for the award of attorneys' fees to the shipper?

12. Should Section 8 of the Interstate

Commerce Act be amended to limit the recovery of reparation to complainants proving actual pecuniary loss?

### B. Coordination

1. What are your views as to the desirability of the coordination of all agencies of transportation?

2. If the railroads should undertake such coordination, should they perform all service under their own auspices or should coordination be effected through the cooperative effort of rail and independent motor, water and air operators, as through mandatory joint rates?

### C. Regulation of Interstate Motor Carriers

1. Should interstate motor busses and/or trucks be regulated by the Federal Government?

2. In the event of such Federal legislation, what matters and types of carriers (common, contract or private operators transporting their own goods) should it embrace?

3. Should such legislation provide for the regulation of the sizes and gross weights of motor vehicles and combinations thereof, or should these matters be left to the regulatory agencies of each state? In either event, have you any definite recommendations to make with reference to maximum permissible lengths and gross weights?

4. What are your views with reference to providing for compulsory public liability and property damage insurance or bond in any Federal Legislation enacted pertaining to motor busses and trucks?

5. What legal authority exists under which the Federal Government could enact legislation to regulate contract and private motor operators?

6. Should those who use public highways for commercial purposes bear the cost of any added thickness and width of the highways required by the operation thereon of large commercial vehicles?

### D. Regulation of Water Lines

1. Should the Federal Government regulate domestic water lines?

2. In the event of such regulation, what matters and what types of carriers should it embrace?

3. In the event of such regulation, by what Governmental body should it be administered?

4. Should tolls be charged for the use of inland waterways made navigable and/or maintained at public expense?

5. What legal authority exists under which the Federal Government could enact legislation to regulate contract and private water carriers?

(TURN TO PAGE 56, PLEASE)



# “Calculators” Make It Simple to Engineer Trucks to Their Jobs

**T**HE formulas given in the article “Here Are the Formulas to Help You Engineer Transportation” which appeared in the July, 1933, issue of COMMERCIAL CAR JOURNAL, are used by both buyers and sellers to fit trucks to the job. Properly applied, they prevent trouble and grief—after the truck is delivered.

All formulas of this kind suffer from the same handicap, the almost universal dislike for figuring. There are comparatively few persons who really enjoy adding and subtracting, multiplying and dividing. Transportation men are not, on the average, much different in this respect from those in other vocations.

To simplify the figuring involved in performance formulas, such as vehicle

Multiplying and dividing specified by formulas are done mechanically and accurately in much less time

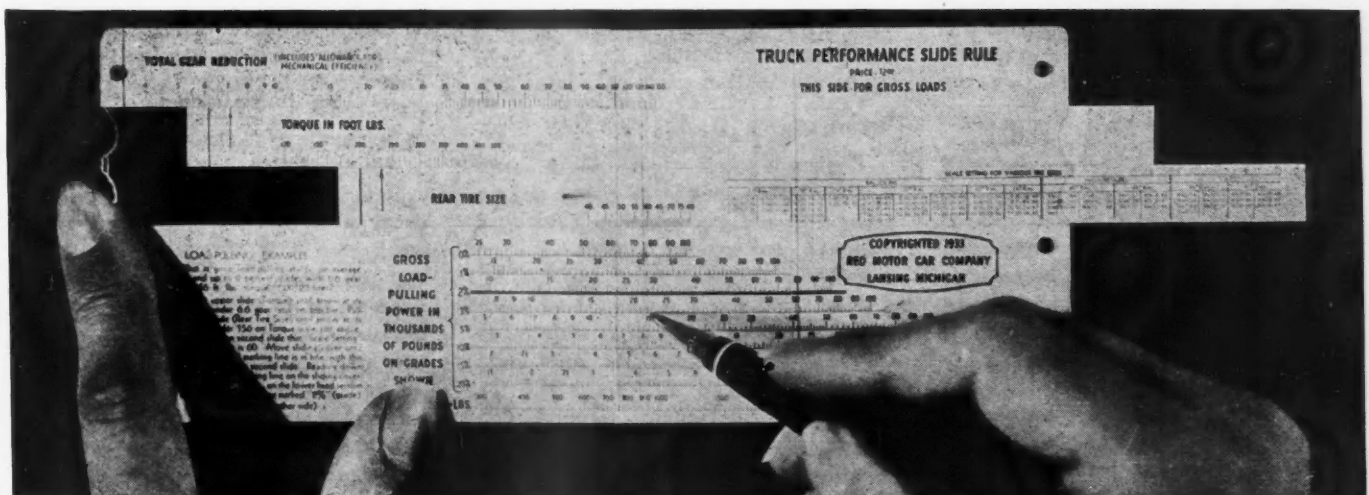
gross weight or engine speed for a given vehicle speed, calculators have been devised by Reo and Dodge Brothers. The Reo carries a price of \$2.00 and may be purchased by anyone. By means of scales on slides the multiplying and dividing are performed mechanically, with a high degree of accuracy and in a fraction of the time required by the paper and pencil (and eraser) method.

These calculators incorporate the formulas in their design and it is not

necessary for the user of the calculator to remember the formulas. The various factors are set in the calculator and the answer is read off the corresponding scale.

Calculating gross vehicle weight, formula 14 in the July story, involves, for example, multiplying 6.65 by 230 by 6.6 and then dividing by 16.49 multiplied by .035. That will take about four minutes using pencil and paper if everything goes well—and do not be ashamed if it takes longer. It takes less than 30 seconds to get the same answer on the calculator. The writer did it in 20 seconds in competition with an engineer working with a slide rule who finished the job in 40 seconds.

Both the Reo and Dodge calculators



The Reo performance calculator has gear reduction on upper scale, torque of engine on first slide and tire factor on second slide. Vehicle gross weight for corresponding grades is shown by hairline on sliding cover.



are modified slide rules, in which the scales are based on logarithms. The result of this arrangement is that adding the number on one scale to that on another multiplies the numbers and the answer is the product of the numbers, not the sum. For illustration, when the number 3 is moved on a slide to a position opposite 4 the answer is not seven ( $3 + 4$ ) but 12 ( $3 \times 4$ ).

By applying this simple principle to the figures involved in truck performance the calculators make it possible to find answers to all of the common formulas in a short time. The five basic factors involved in performance are: engine torque or displacement, gear reduction, rolling radius of driving tire, grade and vehicle gross weight. Given any four of the factors the fifth can be found on the calculator.

In addition, the vehicle speed for a given engine speed or the engine speed for a given vehicle speed frequently are required. Both the calculators solve this problem on additional scales on the reverse side. The factors in this case are gear reduction and rolling radius of driving tire. These known figures are set up on the scales and then engine speed and vehicle speed are on adjoining scales.

#### ● Figures Truck Ability

Although similar in mathematical conception the Reo and Dodge calculators, both of which are copyrighted, differ in design and arrangement. The Reo is a rectangle  $3\frac{1}{4} \times 8$  in. covered with transparent material. There are two slides, one carrying the engine torque figures and the other a scale for tire size. Total gear reduction, including an allowance for mechanical efficiency, is given on the upper scale. The lower scale gives the gross vehicle weight which a vehicle with the characteristics set up on the scales can pull up grades of the percentage shown on the lower scale. The grades extend from zero (level) to 20 per cent and an additional scale at the bottom shows rim pull. Figures on the lower scale are lined up by a hairline on the transparent sliding cover.

To calculate load pulling ability the upper slide is pulled to the right until an arrow on the end is opposite the rear axle gear ratio, or overall ratio if the truck is assumed to be running in gear, then the arrow on the lower slide is pulled to the right until it registers with the engine torque. The third step is to find out the scale setting for the rear tire size and to bring the hairline on the sliding cover over this figure. Then following down the hairline the gross vehicle weight is read on the scale corresponding to the assumed grade.

To find out the gear ratio required

as for gross load of 29,000 lb. on a 2 per cent grade with 9.00/20 tires and 230 ft. lb. torque the operations are in reverse order, starting at the bottom. The hairline is moved over 29,000 lb. and the tire scale moved over until the factor for 9.00/20 tires, 53, is under the line. The upper slide is then moved until 230 lb. of torque is over the arrow on the lower slide and the answer, gear ratio of 8 to 1, may be read just above the arrow at the left end of the upper slide. Torque required for a given condition can be calculated in a similar manner.

The Dodge calculator measures  $8\frac{1}{2} \times 11$  in. and includes circular scales and slides for both performance and engine-vehicle speed problems. The performance calculator has four concentric circles, the speed calculator two.

#### ● Calculates Grade

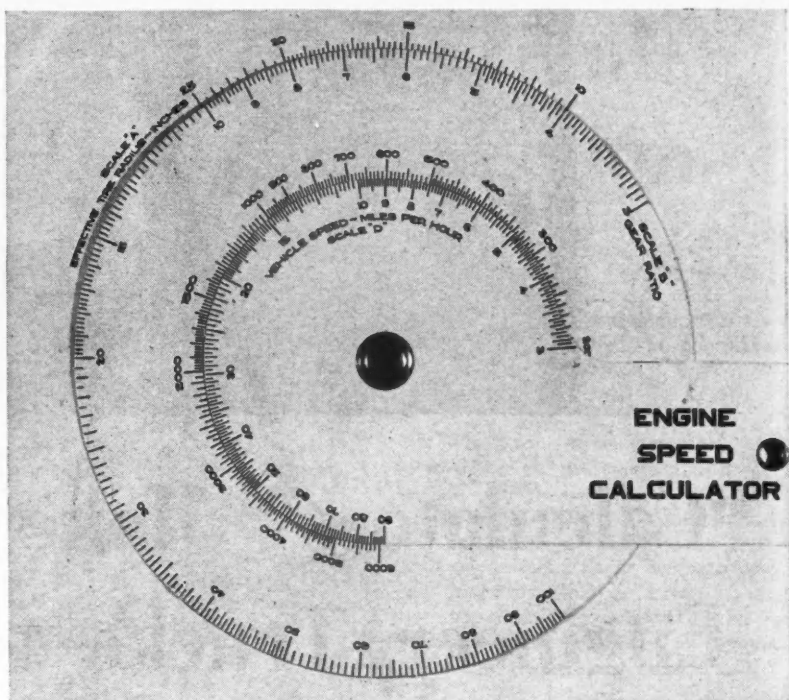
The grade which can be climbed with a given gross weight is given as the answer in the performance calculator although any of the factors can be calculated if the others are known. The outside scale is set up for effective tire radius, the first circular slide takes care of transmission and rear axle ratios, the second slide is ruled for gross weight and engine torque. The stationary third circle shows tractive effort in pounds per 1000 pounds gross weight and this figure carried over to the moving inner circle shows grade in per cent. The latter includes an allow-

ance for road surfaces. The most favorable conditions are "concrete, asphalt, brick, wood block and macadam," and the worst condition is sand.

#### ● Vehicle or Engine Speed

Effective tire radius is on the outer scale of the speed calculator and the single rotating slide carries gear ratio on its outer edge and engine revolutions on its inner edge. Vehicle speed is shown in miles per hour on the stationary inner scale. When the gear ratio is lined up with the effective tire radius the vehicle speed for any given engine speed or the engine speed for any given vehicle speed can be read off the two inner scales.

Speed calculators of either Reo or Dodge type can be used to figure engine or vehicle speeds with a given gear ratio and tire size or they can be used to figure the gear ratio needed to insure a given relation between engine and vehicle speed. For illustration, if a gear ratio of 8:1 is assumed on a truck with 7.00/20 rear tires we find that the engine will have to wind 4050 r.p.m. to drive the job at 50 m.p.h. If we wish that road speed and desire to keep engine speed down to 3000 r.p.m. we find by moving the slide that the gear ratio should be 5.9. By running the problem through the performance calculator we will find that this will call for the use of a larger engine than that required to move the load with a rear axle ratio of 8:1.



The Dodge Brothers engine speed calculator carries tire radius on outer scale, gear ratio on circular slide. Engine and vehicle speeds are shown in inner scales.

# Aluminum Used in New Tanks Saves 1400 to 1800 lb.

Gulf's new jobs in five capacities  
have more weight on the front axle.  
Side outlets lighten rear-end load.



At top: Skirting and catwalk have round corners blending with the tank contour. The skirting extends to running board level. A hose reel is housed in rear compartment. Above: Outlets and controls are placed on the right side in enclosed compartments

**T**HE 340 tank trucks recently purchased by Gulf Refining Co. attracted much attention because of the size of the transaction, but details of design and construction just released make this new fleet doubly interesting.

Both tanks and trucks have been designed as companion units of modern liquid-carrying vehicles intended to move their loads more efficiently. The chassis and tank layout distributes more weight on the front axle than usual, 1/3 front and 2/3 rear on many of the jobs, to increase the allowable gross weight in states imposing limits on axle loads, and many of the tanks are of aluminum alloy construction to further increase the payload permitted. In addition these vehicles incorporate present-day style as well as side outlet valves and meters for either gasoline or fuel oil.

More weight is distributed on the front wheels by placing the front axle further back, as much as 18 in. on some models. The percentage increase of front end load by this means is 11 per cent. On the smaller units this raises the front axle load to 20 per cent and on the larger units to 33 1/3 per cent of the total. Tanks, likewise, have been shifted forward 3 in. by dishing the heads inward which allows them to be placed closer to the cab. Longitudinal manifolds and side outlets lighten the rear end dead load. These changes make it possible to carry a given load length on a shorter wheelbase.

The new trucks are of five capacities, 750, 1000, 1200, 1500 and 1925 gallons. CA dimensions, back of cab to center of rear axle, are 83, 96, 106 and 111 in. respectively for the first four capacities. Wheelbases are 168 in. for 750 gal. unit, 170 and 183 for the 1000 gal., 180 and 183 for 1200 gal., 183 and 192 for 1500 gal. and 215 for the 1925 gal. tank truck.

Seventy-two of the tanks are of aluminum alloy, of elliptical shape and double bulkhead construction, comprising four separable compartments. These tanks, fabricated by Quaker City Iron Works, Philadelphia, and Farrell Mfg. Co., Joliet, Ill., are made of .1875 in. plate and .204 in. heads welded together. Aluminum alloy is used in bulkheads, underframe, bolsters, shell, catwalk, hose tube, expansion domes and covers.

Weights of single bulkhead steel tanks compared with double bulkhead aluminum alloy tanks, including in each case running board, underslung side box and bucket box and not including equipment which is identical in either case are:

Capacity	Steel	Aluminum	Difference
750	3650	2180	1470
1000	4215	2406	1809
1200	4530	2808	1722
1500	4805	3065	1740

Underframe bolsters are fabricated from alloys of the duralumin type, by riveting angles and plate together. Catwalks are made of non-skid aluminum tread plate. The skirting, as

shown, in the accompanying illustrations, embodies sweeping curves and round corners. Expansion domes are made of sheet aluminum butt-welded to the tank shell. Covers of cast aluminum are bolted to the domes.

All but a few of the tank trucks are equipped with meters made by Pittsburgh Equitable Meter Co., Pittsburgh. They are of the piston displacement type and are equipped with vacuum breakers and strainers. All major parts are of aluminum. These meters are designed for gravity flow operation and will run and measure on a head as low as one or two inches.

No change was made in design of the cab but other parts were re-arranged. Viewed from the side, the catwalk shows as a straight belt line on a level with the belt on hood and double lines on the cab. The can racks have been taken from the usual side position and slung below the tank oval, running the full length on each side. This design gives a skirt effect extending down to step level all the way to the rear. The sides of the can compartments are flush with the outside edge of the steps and at the extreme width of the body. Markers, lights and reflectors indicate the edges to drivers of other vehicles approaching from the front.

In addition to the 340 tank trucks, 150 stake trucks were included in the order which totalled more than \$1,742,000 shared by four truck companies. The present fleet is but a portion of total purchases contemplated as a part of a modernization program.





# TRICKS WITH THE WELDING TORCH THAT SAVE MONEY ON MOTOR TRUCKS

## Part 4

By **BILLIE BURGAN**  
Fleet Superintendent  
HAGE'S ICE CREAM CO.

**B**ATTERY makers vary dimensions of batteries from time to time and sometimes a new battery will not line up in the place where its predecessor rested. We have a quick solution for this difficulty; we support the battery by two clamps, made by the welding torch, Fig. 1.

We cut the heads off two carriage bolts and braze or weld them to a straight piece of  $\frac{1}{8}$  x 1 in. strap steel and then bend to fit the battery. The brackets are extended through a partition of wood or steel across the open side of the battery space.

### • Sturdy Wing Nut

When drivers get tough with the spare tire and break the wing nut holding it in place in the fender well we make a new nut with the welding torch that won't break. And it is easier to fasten down tight. We take a nut of the right size and weld it to a piece of pipe and then weld the pipe to a

Bending flat stock and angle irons to form brackets and similar parts has been mentioned in previous installments of this series of articles showing how a welding torch is used in truck maintenance. In this article details of flat and angle bends are shown.

In addition an account is given of the usefulness of the welding torch in improving the braking system on two different truck models. The "Fire Fly," as the author calls the welding torch, is here shown as a tool for making parts, rather than its usual role of mender.

handle made of a piece of  $\frac{1}{2}$  x 1 in. channel. Handle, pipe and channel can be held together by a long bolt during welding. See Fig. 2.

### • Brake Improvements

Age piled up on a couple trucks of one make and one of another while the exchequer was going down, then new laws were passed requiring a 37 ft. stop at 20 m.p.h. It looked like we needed new front axles, new brake drums and a four wheel set-up. Again we scratched our bean, looked at the original application, planned some changes that would avoid the big expense on those old models and carry us along to the time when we could buy new trucks. The scheme worked.

The hook-up on the Federal U4 is shown in Fig. 4. Proceed this way: Discard the two rods that connect the hand brakes from the axle to the mid-

ship levers and install their clevises on two cam lever connecting rods marked A. While holding cam levers to "on" position, space them on rods A.

Shorten hand brake rod  $7\frac{1}{2}$  in. Then rethread and connect it to a midships lever and foot lever rod with slotted clevis B.

Make eye bolt C from the  $7\frac{1}{2}$  in. piece and install it on the rear transmission cross member to support the hand rod in line with a midships lever. The midships hand levers are left loose. Long clevis pin D with washers and cotters completes the line-up.

Subsequent adjustments are made as before except the foot rod turn buckle is set up first, then the hand rod turn-buckle enough to eliminate slack from the slotted clevis.

We changed the brake hook-up to use all the lining area for either service or standing purposes. We claim more even wear of lining, better leverage between foot and hand when both are required, a much quicker stop, and safer parking.

The hook-up on AB Mack which provides better leverage is shown in Fig. 3.

The pedal was extended by welding two pieces of  $\frac{1}{4}$  in. soft steel stock over the end of the pedal. The sloping top surface was cut to put the pedal pad on an angle of 20 deg. This, of course, required widening the slot in the toe board to accommodate the extra width of the extended pedal.

The bracket and double lever part are discarded and pull on the pedal is taken directly to the equalizer by mak-

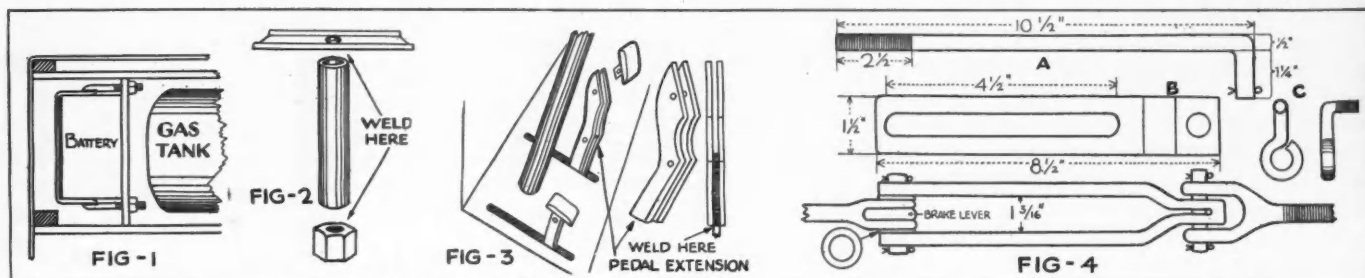






Fig. 5. To make a bend in angle iron start with wrench and keep bend red hot



Fig. 6. Brazing a washer flange on a mirror brace using formed angle brace

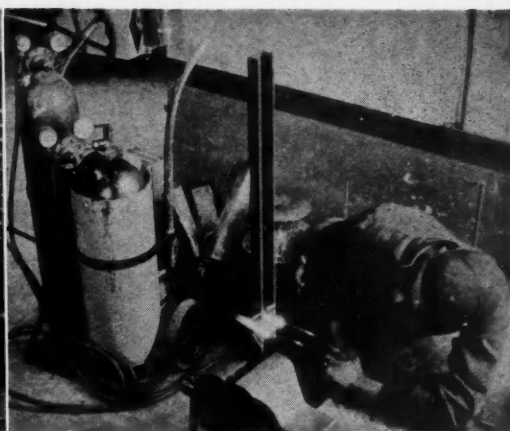


Fig. 7. Swinging torch from one edge of channel to another seems like two torches

ing a new pull rod and extending it through a hole cut through the frame cross member. After trying out the new hook-up the driver said that he almost went through the windshield.

### ● Bends and Bending

To make a folded bend in or out in angle iron heat the mitre red, hang the torch on the rest. Then start the fold with a Crescent wrench and hold the torch on the mitre keeping it red until bend is completed. Good for trunk racks, angle braces, tank mounts, trays, etc. Fig. 5.

Set up to braze a washer flange on a mirror brace, is shown in Fig. 6, using a folded bend of angle iron in the vise to establish proper height for the rod, resting on a block through a piece of iron, on two fire bricks. Why sweat over threading a rod two or three inches to make a place for a jamb nut when a better looking job can be done quicker with the torch?

This fellow in Fig. 7 is not holding two torches but one; trained on the lips of 2 in. channel iron. At three second intervals, one mitre lip, then the other is heated until yellow-red, then hang the torch on the rest to be bent as shown in Fig. 8.

If the stock is short or long a wrench will provide a more even pull than a lone hand. If in doubt as to the heat or the pull let the other fellow pull slowly while you hold the heat evenly on the mitres. We make extra frame step supports any size in 20 to 30 min-

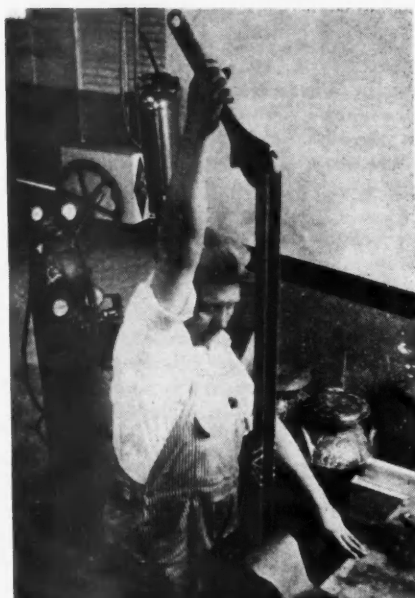


Fig. 8. A wrench can be used to provide a more even pull for bending channels

utes each. How can you afford hunting up junk steps that rarely ever fit after finding?

### ● Curved Angles

To make a curved corner stretch bend in angle iron make eight chalk marks, one inch apart as in Fig. 9. Catch in the vise with lip turned away from the operator. Heat a line yellow-red then pull toward the operator about 10 deg. then heat another line and repeat until the full 90 deg. are made. About 5 deg. of bend will take place naturally at each end. If the lip stretches unevenly flatten on the floor or between vise jaws.

The set-up for compressed bend, Fig. 10, in angle iron is like that in Fig. 9, except the lip is toward the operator and the wrench is shifted to the other lip. As the progression takes place the compressed lip becomes thicker, whereas in the former it becomes thinner. This bend as described is well shown on the empty can rack in Fig. 13 in the article in the October issue.

A twisted or quarter turn bend is shown in Fig. 11. Heat the metal at X marked in chalk yellow-red, then direct torch on the rest and execute with a monkey wrench.



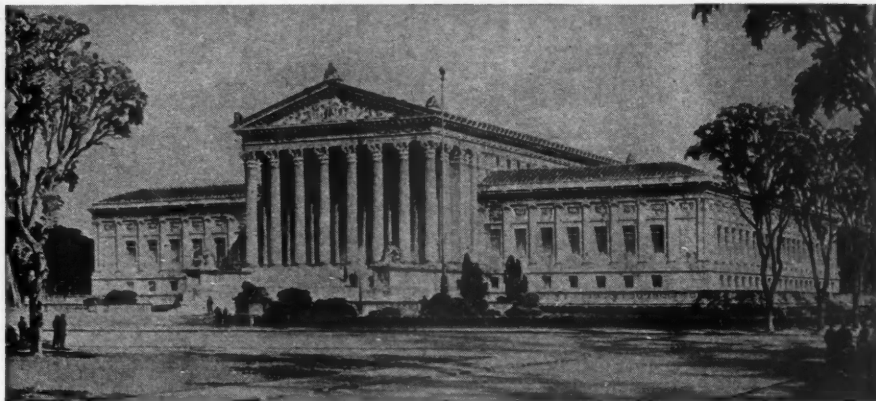
Fig. 9. Make eight chalk marks as guides for corner stretch bends in angle irons



Fig. 10. Compressed corner bends are like stretch bends except position of flange



Fig. 11. For a quarter twist mark an X with chalk on side of metal and heat



Architect's drawing of U. S. Supreme Court Building, Washington, D. C.

## Court and Commission Rulings on Trucks

### Filing of Applications

*Matthews et al v. State ex rel. St. Andrews Bay Transportation Co.,  
Florida Supreme Court*

THE provision in the Carrier Law providing that after the Commission has denied an application for a certificate of public convenience and necessity it may not entertain any further application covering the identical or similar routes, schedules or service until after the expiration of six months from the date of the denial is intended to restrain promiscuous successive applications. An application by a motor carrier for a permit to carry on an interstate business is not barred merely because the same carrier has previously been denied a certificate of public convenience and necessity for an intrastate operation.

### Tax Validity Pending

*Aero Mayflower Transit Co. v. Doyal,  
Georgia Supreme Court*

AN appeal is now pending in the Georgia Supreme Court from the decision in the lower court in the case of Aero Mayflower Transit Co. v. Doyal. The lower court held that the regular registration tag tax in Georgia was unconstitutional as applied to operators of trucks doing only an interstate business on the ground that the tax was a flat annual tax and not levied in proportion to the use made of the highways as is required, Watkins, Asbill & Watkins, attorneys for the Company contend, by the decision of the Supreme Court of the United States in *Intrastate Transit v. Lindsey*.

### Investigate Terminals

AN order has been issued for an investigation of certain motor freight carrier terminals located in Waterloo to de-

termine whether or not they are operating in conformity with the law, it having come to the attention of the Commission that "Several different persons, firms or corporations at Waterloo are operating freight motor carrier terminals, soliciting the transportation of freight, issuing bills of lading and, either separately or as agents for freight motor carriers, otherwise handling shipments incidental to that business; further, that certain freight motor carriers serving Waterloo have for various reasons refused to receive or discharge shipments at certain terminals causing, it is alleged, unnecessary delay in the movement of freight, and otherwise affecting the interests of the shippers and receivers of freight, the terminals and the carriers."

"It is the opinion of this Commission that freight motor carrier terminals, either separately or as agents for freight motor carriers, form a vital and integral part of the service afforded by freight motor carriers and in so doing come within the purview of Chapter 252-A1, Code of Iowa, 1931." In *Matter of the Investigation of Motor Freight Terminals at Waterloo*, Docket No. H-1893, Board of Railroad Commissioners of Iowa.

### Employee Continuance

WHERE the Commission has ordered a carrier to discontinue service, an employee of that company may not continue the business without compliance with all conditions relating to new applications. Commission states, "Enforcement of the law would be impossible if the Commission would grant its approval to operation by an applicant who, knowing that another carrier had been directed to discontinue service because it did not have the required approval, should himself begin that service

### FREE TO READERS

*Commercial Car Journal* will be glad to procure expert legal advice for any reader who is faced with a legal problem involving a motor truck. There is no charge for this service. Inquiries made in confidence will be so honored. Just address your letters to The Editor.

without such approval as soon as the other carrier obeyed the direction of the Commission." In re Application of Charles Wall, Docket No. 25788. Public Service Commission of Pennsylvania.

### Express Business Defined

LOCAL transportation between points in the same delivery area and unconnected with rail carriage is not included in what is ordinarily considered 'express transportation business,' the Commission stated in an order holding that the Railway Express Agency, Inc., did not have the right to engage in a local transportation business under its certificate giving it the right to "conduct an express transportation business within this commonwealth." *Railway Express Agency, Inc. Docket 20155*. Public Service Commission of Pennsylvania.

### Guest Rider Liability

*Snyder v. National Union Indemnity Co., Utah Circuit Court of Appeals*

IN this case, a guest rider on a truck was held not able to recover against an insurance company whose policy was issued to cover negligent operation of the truck in which policy there was the provision that the liability was limited in the case of commercial vehicles to injuries sustained only in the business there set forth (in this case "merchant" had been inserted in the policy) including loading and unloading and incidental pleasure use for the named assured's family. In a separate opinion, Justice McDermott stated, "I doubt if an owner's liability insurance is suspended whenever a driver picks up a friend."

### Colorado UR Tax Void

*Consolidated Motor Freight, Inc., and C. D. Walker et al v. State, Colorado Supreme Court*

COLORADO'S unemployment relief tax on motor vehicles was held unconstitutional and void by a four-to-three decision. The majority opinion said, "The exaction of a license fee with a view to revenue is not the exercise of the police power but of the power of taxation. So free from doubt is the matter that we are constrained to and do hold that the tax imposed is a property tax and not an additional license fee. And since it is a property tax and is manifestly not uniform, upon the same class of subjects within the territorial limits of the authority levying the tax the act must be and is held to be repugnant to Section 3, Article X, of the Constitution and therefore void."





# A 100-Truck Fleet's Cost System Which Smaller Fleets Can Use

This form gives the truck number, division, hours, cost, description of operation and other necessary information. This company has several divisions, such as fresh milk division, ice cream division, cheese division, as well

[illegible]

NOVEMBER, 1933



as trucks for special purposes. But all costs are easily segregated both as to individual, truck and division.

We have cut out all folderols in our cost accounting. We want figures that will help us cut costs before they occur, but beyond that we do not go. Of course the main office figures interest on investment, depreciation, et cetera, but those phases of accounting do not directly affect the operation, and hence do not concern us at the garage.

When the shop has completed the work designated on the Daily Truck Report, the information is then transferred to a general ledger, with an account opened for each truck on a 30-day basis. See Daily Truck Record Operating Cost form on page 31. Reports go into this ledger daily.

Another source of ledger information

is an oil chart, listing all trucks. As oil is taken on—twice each month regularly—notations of amount and cost for each truck is made on the chart. Grease is prorated among all the trucks. This oil chart is merely a hand-ruled sheet inserted in a celluloid fronted folder. The chart is filled out by the oil attendant during the process of lubrication, and hence the celluloid front helps keep the sheet clean.

Changing oil twice per month may not always run out the 500 miles per filling, but I maintain that this practice is more economical than an attempt to change oil on a strictly mileage basis. The increased accounting necessary would not be justified. We do not need to be greatly concerned about running out the full mileage on oil in every instance, for we have an

oil reclaimer that enables us to use oil over and over again.

From the oil chart, information is posted daily into the general ledger.

After the daily truck reports are posted in the ledger they are sorted by truck number and placed on file for a year, and these along with the major repair job ticket, likewise filed, give a complete history of every truck. This in addition to the ledger information, which, of course, cannot be detailed.

Parts used in repair are given special consideration in a separate ledger, an account being opened for each truck.

All ledger information is recapitulated by the month and separately posted, and likewise for the year.

Hence we have a daily, monthly, and yearly record of cost of each truck with a minimum of office detail.

## "We Junk Old Trucks"

(CONTINUED FROM PAGE 15)

necessary, but it is equally certain that they cut down efficiency. A lower horsepower would eliminate the need for them, and at the same time bring about a decided reduction in gasoline costs.

We have several plans that have gone a long way toward holding oil costs down to a minimum. In the first place, we don't subscribe to the belief that it is necessary to change oil every so many hundred miles. As a rule, we don't drain a crankcase of a Model T except when the car is brought into the shop for a general overhaul, and I have often seen cars run a year without a change. (The average yearly mileage per vehicle is around 12,000 miles.) Instead, we add a quart for every hundred miles or sometimes a little more. If we don't get at least 100 miles, we consider that it's time to look into the motor.

Under this plan of operation, we get a little better than 20,700 miles out of 55 gallons of oil. We have discovered that the saving on filling as opposed to draining more than covers the cost of replacement parts, and a good many of them would have to be made anyway. The point is that our records show lubrication to be almost as complete with refilling as with regular draining.

Another thing that has saved us a great deal of money has been the reclaiming of oil. Our mixture consists of one-third new oil and two-thirds the reclaimed product. We have the reclaiming done outside at a cost of 22 cents per gallon. Of course, in order to reclaim oil it is necessary to have a first-class product in the first place. We buy absolutely the best on the mar-

ket, but we get our money's worth when it is considered that we use it one and two-thirds times.

The Model A units are drained every 1500 miles, but this oil is reclaimed and used in the Model T's. When a Model A takes oil of over one quart to about 150 miles, we look into the rings. We have been getting about 25,000 miles on an original A motor. Rings changed at that time will give us about 10,000 to 12,000 more miles before a rebore is necessary. The first rebore will last for about 20,000 miles and a set of rings at the end of this time gives another 10,000 miles.

We have lately been trying with remarkable success a multiple ring on some jobs. By putting in the multiple ring, we have delayed the second rebore 5000 miles in three instances. It should be kept in mind that our units operate with governors set at 30 m.p.h., which figures materially in the wear on the motor.

### ● Casing Repairs Limited

We haven't found it economical to attempt to use tires too long. We never use boots, and with tire prices at their present level, we don't believe there's any economy in paying more than two dollars for having a break repaired. Our theory is that "shaky" casings usually mean heavy losses on tubes, with the result that there is no economy in the long run.

We average about 12,000 miles on standard equipment tires, 15,000 to 18,000 on six-ply replacements and as high as 33,000—a top figure—on deluxe models.

Our records further indicate that it pays to buy a good battery guaranteed for full two years. We have kept our battery costs down to 37 cents per car a month by doing so.

## Gasoline Bonus Systems

(CONTINUED FROM PAGE 22)

outlined, the system has been found to work well.

The second method, however, which will now be described, does encourage individual effort. This company operates nearly 1000 vehicles, and a basic figure is adopted for each type. The routes traverse both rural and urban areas, hilly and otherwise, so that it is manifestly impossible to fix a route figure as well. Comparatively few vehicles are confined solely to city routes, so that on an average the services are comparable. The vehicles are petrolled up after every trip, and the mileage recorded against each. If the resultant m.p.g. reaches the basic figure, then a bonus of one shilling is paid, irrespective of the mileage covered. Thus the short distance driver is not penalized at the expense of one on a long run. On the other hand, with this system there is no incentive to achieve particularly low consumptions. For example, if the basic figure is 6 m.p.g. the driver who returns 6.09 will draw the same amount of bonus as one who records a figure of 6.8 m.p.g. In fact, this is not a serious drawback, as the basic figures are accurately assessed, and it is not normally possible to exceed them by a large margin. The average driver is always out to achieve the best result, as he knows that any unforeseen cause (e. g., succession of traffic blocks) may mean the difference between gaining or losing his bonus.

These are typical systems in use. The most important factor is, of course, assessing the basic figure. Too high a figure will discourage any effort to earn a bonus, and one too low will result in the system proving more expensive than the saving achieved.



Pedrick piston ring compressor

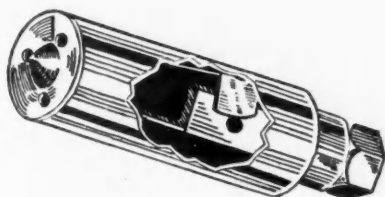
### Ring Corsets

● Time was when mechanics subdued rings on pistons with string or stove pipe wire and parts of tin cans—plus cuss words. The rings finally gave in with all the willingness of a balky mule. Nowadays rings are helpless. Wilkening Mfg. Co. offers a squeezer based on the sliding wedge principle except that this wedge pulls in instead of splitting apart, like Lincoln's rail splitters. It has a two-piece slotted hand which can be adjusted to fit rings from 2½ to 5½ in. in diameter. An edge is turned up on each section and pressure is applied by sliding a tapered handle over the edges, as in photograph. You can let the minister watch you.

Rinck-McIlwaine, Inc., makes a squeezer which is adjustable from 2 to 5 in. in diameter. Pressure is applied by a T-handle slipped into an eccentric gadget on the side. The bottom of the band is tapered to enable it to sneak in even on chamfered pistons.

### More Air—Not Hot

● Pet cocks on intake manifolds will admit extra air, if the driver turns them on and off frequently, very frequently. An automatic extra air intake is made by Blancke Products Co. It costs \$3.85 with all fittings ready to install. When the engine is cold the thermostat valve is shut like a clam. When the engine warms up it opens and lets the air into the intake manifold through a fitting connected to a copper tube. The unit rests on the exhaust



manifold, comfortably we are told. The makers claim that the device alters the mixture in accord with changes in outside air temperature as well as engine temperature, saving gasoline.

## \$ALVAGE—from a Shop Man's Mail

Being the impressions and reactions of an experienced shop man to new products offered by manufacturers. The editor will gladly put readers in touch with the makers mentioned.

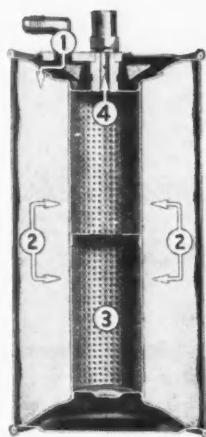
### Liquid Raincoat

● Red Insul is a liquid synthetic product to be applied by brush to wires, distributor, coil and the whole ignition system of a motor vehicle to make it waterproof. The liquid can also be used on generator and magneto armatures.

### Cat's Eyes and Filters

● AC Spark Plug Co. tells me it is ready to supply reflex signals with black duco bezels, companions to the chromium plated signals, at 65 cents each retail with discount to dealers for packages of six.

Same company is ready with three new oil filters for motor vehicles not originally equipped with these devices. These filters are of the "depth" type in which the oil is forced through an extra thick cotton fibre filter element. The filters retail for



\$2.75, less than the former cost of a 10,000-mile cartridge, and are to be replaced every 8000 miles.

### Lead Lubricant

● Bestolife contains finely divided particles of metallic lead ranging from 10 to 65 per cent of the total. Armit Laboratories, makers, propose its use in transmissions and rear axles, pumps, wheel bearings and universal joints and say it won't get discouraged until temperatures are 430 deg. F. or more.

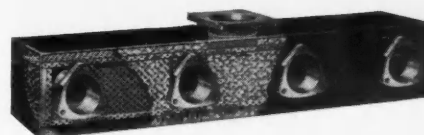
### Bear Offers—

● Bear-Lube, a lubricant for steering gears. It has been tested thoroughly, is non-fluid and is guaranteed to cling ever so closely to gears. Bear Mfg. Co., the alignment checkers, market it.

### Sh-h-h-h-h

● Burgess Battery Co., makers of mufflers, have decided that a good place

to muffle intake or exhaust noises is where they start, to wit, in the manifold. Hence, silencing manifolds in which sound is absorbed in porous material faced with perforated lining through which the gases pass. There are no baffle plates or de-



flectors to antagonize the gases and build up pressure.

### Push-Pull Tester

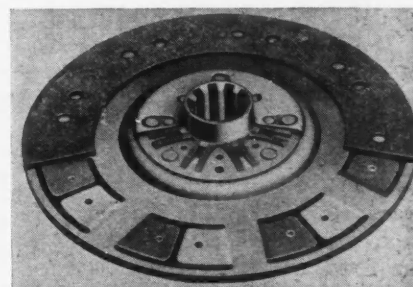
● Ailing fuel pumps must be tested for suction and for pressure, and shop men would like to do both without taking the pump from its resting place on the crankcase. Cropley Testoscope Co. designed a combination gage several months ago and report that it answers the need.

### "At Ease, Men"

● Outboard motorboat racers have been using sponge rubber to take up the shocks. The Sponge Rubber Products Co. is making seat cushions and fillers of this material. If you want to see ideal driver comfort illustrated, get a copy of their pamphlet, "Solid Comfort." The editor will gladly tell them that you want a copy.

### Starting Not Stopping

● Wagner Electric Corp.—Lockheed hydraulic is right—is distributing a device for making vehicles move instead of stopping them. It's the Ohio Flexon clutch plate. The center is flexible, there are



128 watch spring steel laminated springs encased in a dust-tight cover. Facings are held on 16 mounting surfaces alternately above and below the drive plate level to cushion shocks.



An inclined V-shaped radiator grill, single bar V bumper and horizontal side grilles mark the new White Models 701 and 702, the former carries single rear tires, the latter duals. Wheelbases are 132 and 156 in.

### Features of New Whites

- Model 701, rated 1 1/4-1 1/2 tons, 8000 lb. gross weight, on 7.00/20 tires single front and rear, price \$1085.
- Model 702, rated 1 1/2-2 tons, 11,000 lb. gross weight, 7.00/20 tires, dual rear, price \$1185.
- Major units in both: White L-head six-cylinder 240 cu. in. engine; White four-speed transmission, White full-floating bevel gear rear axle, hydraulic brakes, vacuum operated.

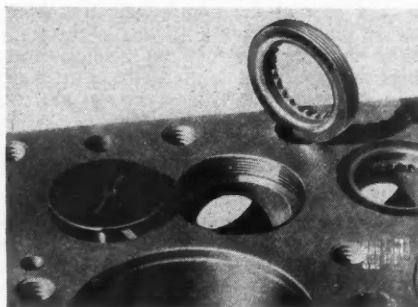
## White Bids for Volume with an All-White 1 1/2-ton at \$1085

**A** PEEK behind the scenes before the White Co. unveiled two new models for the benefit of a group of salesmen, branch managers and company officials a few days ago revealed the trucks as Whites at new low prices. Model 701, rated 8000 lb. gross and 1 1/4-1 1/2 on tonnage basis is priced \$1085, and its companion, Model 702, which carries dual rear tires, lists at \$1185. These figures are approximately \$800 less than those of immediately preceding models in the capacity range. The company intimated that the price could be maintained only by attaining volume production.

The new models, seen on the assembly line, embody typical White features of design and are styled in the modern mode. The new L-head 240 cu. in. engine, the four-speed transmission and the bevel gear full-floating rear axle are built in the White factory. Stellite exhaust valve seat inserts are fitted, as in larger models; piston pins are pressure lubricated; the hydraulic brake system is actuated by a B-K reaction type vacuum cylinder and brake drums are made of gun-iron. The hand brake, on the rear of the transmission, has a gun-iron drum.

By JAMES W. COTTRELL  
Technical Editor  
Commercial Car Journal

While retaining the characteristic White radiator outline the new models carry a sloping V-front with chrome-plated radiator shell and painted grill. A horizontal grill replaces the usual hood louvers, or doors, and it occupies most of the area of the hood side. Attachable covers will close the openings in cold weather.



Stellite inserts are used on exhaust valve seats. There is a shallow V-groove at top of the cylinder bore

Heavier loading of front axles, a feature of the K series described in the September issue, is incorporated in the new models not to increase maximum load but to distribute weight more evenly on front and rear tires and to insure shorter wheelbase for a given load space.

The engine, which has six cylinders 3 5/16 x 4 5/8 in., has integral cylinder and crankcase casting. It develops 150 lb. ft. of torque, 68 hp. at 2800 r.p.m., and is governed at 2400 r.p.m. This speed gives road speeds of 50 m.p.h. for the fastest rear axle ratio and 35 m.p.h. for the lowest. The ratios are: 5.1, 5.88 and 6.86. The engine is carried on two rubber pads at the front and on a vertical cross plate at the rear, bolted between the flywheel housing and transmission.

Full pressure lubrication is provided to main bearings, connecting rods and piston pins. The pins float in both rods and pistons. The pump is mounted on the outside of the crankcase and a special oil intake and oil filter are used to insure clean oil.

The Stellite exhaust valve seat inserts are screwed in and pinned. Plated cast-iron pistons are standard



and steel-backed bearings are used for both mains and connecting rods.

The four-bearing crankshaft is counterweighted and fitted with a vibration damper.

Oil pump and distributor are driven by an inclined shaft driven from a gear on the camshaft, and the water pump, fan and generator are driven by a double V-belt, tension of which is adjusted by moving the generator. Various sizes of generator pulleys are furnished for special conditions.

Power is transmitted through a single-plate dry clutch with automatic adjustment and ball-bearing throwout and a four-speed transmission. The latter contains heat-treated and case-hardened gears and is provided with power take-off opening. Ratios are 6.4, 3.0, 1.7 and direct. The gear lever is offset slightly because of the engine recess in the dash brought about by the forward location of the cab.

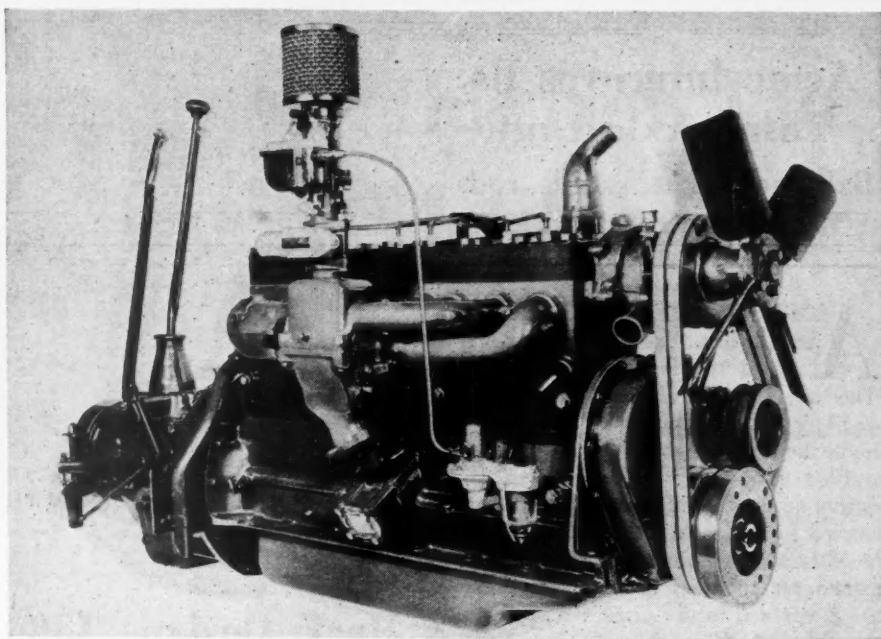
The rear axle housing, of the banjo type, is cast in one piece with pressed-in steel tubes and tapered roller bearings for the wheels. The pinion is straddle-mounted.

Side rails of the frame are 7 x 2 25/32 x 7/32 in. and are heat-treated on the longer wheelbase, 156 in. Standard wheelbases are 132 and 156 in. Cross members are frame depth and gusseted. Universal joints are of needle-bearing type.

Cast-steel, spoke-type wheels are standard but disk wheels are furnished on order at extra cost.

Fuel is carried in a 21½-gal. tank carried under the driver's seat and it is fed to the downdraft carburetor by a mechanical pump.

Driver comfort was considered an important feature in design. The cab is 60 in. wide and provides about 1½ in. more leg room than usual. The



*The six-cylinder engine used in the new models has integral cylinder and crankcase casting. The four bearing crankshaft carries a vibration damper*

seat may be placed in any one of three positions and the same number of adjustments are provided on the steering gear. The dash, toe boards and floor boards are insulated to reduce heat in the front compartment and air for ventilation is directed against the toe boards, where most needed.

The cooling system is designed to maintain proper operating temperature under extreme conditions. Radiating capacity will take care of outside temperature of more than 100 deg. F. A thermostat is used in the cylinder head top outlet and a thermostatically controlled radiator shutter can be placed behind the grill and serviced without removing the grill.

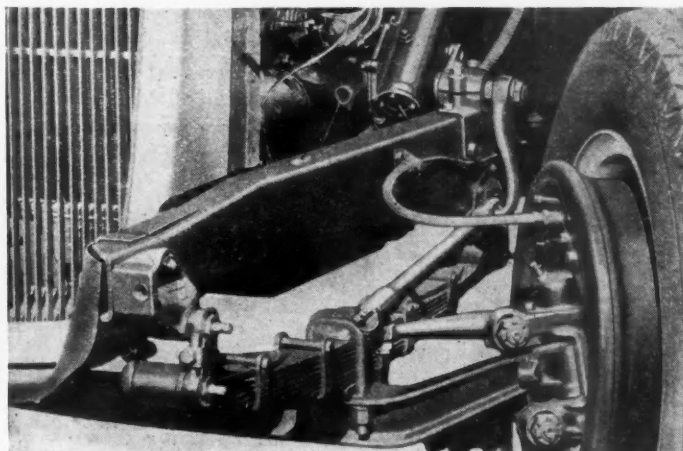
The water pump is bolted to the top of the cylinder water jacket and it extends above the top of the block for-

ward of the cylinder head. The back of the pump housing is closed with a steel plate. A heavy extension of the pump housing carries the outer end of the shaft beyond which the double V pulley and the fan are attached. The shaft outboard bearing is of the double, tapered-roller, back-to-back type.

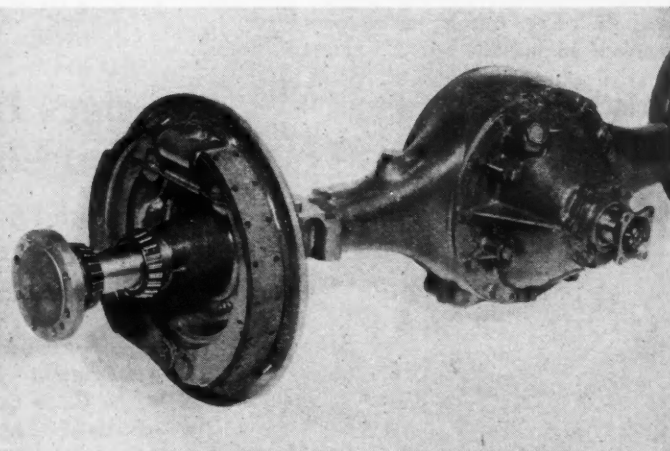
Oil filler tube and dip stick are placed on the left side and the crankcase breather tube extends down on the right side at the rear of the block.

Front springs are shackled at the front and the rear springs carry semi-elliptic helpers above the main springs. Drive and torque are taken through the rear springs. Springs have two leaves wrapped around the eyes, for safety.

Complete specifications of both models will be found in the Specifications Table on page 48 in this issue.



*Steering gear housing is carried above the frame side rail. Front springs are shackled at the front*



*The full floating rear axle embodies a one-piece cast housing with gears in removable carrier*

## Acme Improves Its Third Axle Unit

Ball-and-socket radius rods used on both rear axles

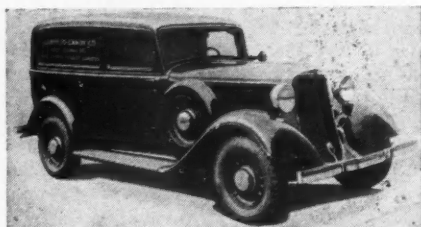
**A**CME SIX WHEELER CO., Cadillac, Mich., has improved its six-wheel unit for Chevrolet trucks. The new unit, designated Model 21, employs ball and socket radius rods on both the driving axle and the Acme trailing axle. The brake hook-up requires no cross shaft, brake pull being carried to the extra axle through flexible cables. Seven extra leaves are furnished for the rear springs and these are assembled in the Chevrolet springs, more than doubling the capacity of the springs. Frame extension channels are furnished to give any desired length of frame back of cab. The back of cab to point midway of two rear axles dimension is  $71\frac{1}{4}$  in. on 131 in. wheel-base chassis and  $97\frac{1}{4}$  in. on the 157 in. chassis.

## Dodge Dual-Purpose Job Clever Idea

Standard sedan convertible into commercial unit

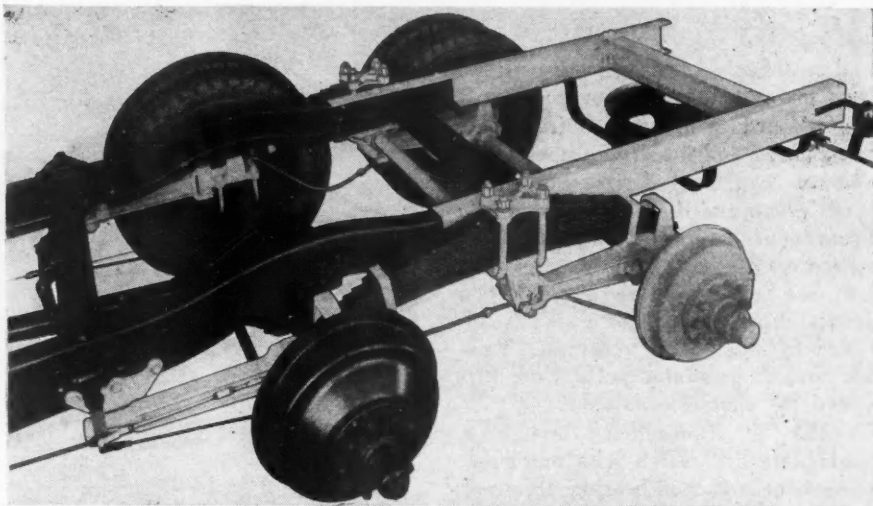
**D**ODGE BROTHERS is offering a new dual-purpose vehicle designed for use by salesmen and delivery men. The vehicle is a standard commercial sedan which may be converted into a two-door passenger sedan.

For commercial use removable steel signs, lettered like body panels, are placed behind the rear side glass panels. For conversion to passenger service an upholstered rear seat is installed through the wide rear door which carries a large window with regulator. The entire interior, including the rear door, is upholstery lined.



Dodge Brothers dual-purpose sedan set up for commercial use

NOVEMBER, 1933



Model 21, improved Acme six-wheeler for Chevrolet trucks

## Mack Designs Jobs for Hauling Beer

Low-bed chassis places top of floor 32 in. from ground

**T**HE Mack company has developed a truck and body design for handling beer in kegs.

The design embodies a low-bed chassis and a body with the floor close to the frame. It places the top of the floor loaded only 32 in. from the ground, which is 19 in. lower than a straight floor without wheelboxes.

The kegs are loaded on end for the first layer except those between the wheelboxes. These wheelboxes are of a height which, added to the diameter of a keg, "level-out" the first layer so that kegs may be laid above in tiers.

Two chassis models are available in this special design. They are the BX and AK-4. The latter is recommended for city operations where heavy loads are carried relatively short distances.

## Briggs Has 2 New Oil Clarifiers

One model is designed for heavy duty, other for light

**B**RIGGS CLARIFIER CO., Transportation Bldg., Washington, D. C., is now in production on two models of oil clarifiers, Model H for engines up to 250 hp., and Model J for lighter duty equipment.

Both clarifiers operate on the same

principle, pressure percolation, which utilizes the engine lubricating system pressure. Oil is forced upward through a container filled with Fuller's earth, a material used in refineries, passing through metal filter cloth at top and bottom. The filter material is treated and packed to prevent channeling. It absorbs dirt, impurities, abrasive particles, acids and products of decomposition and oxidation of the oil. Water is removed and is drained from a sump in the bottom of the clarifier. A relief valve prevents excessive pressure on the unit.

The makers advise that the refill be changed when a drop of oil dropped from the dip stick on clean paper shows a dark mark, ordinarily about 8000 to 10,000 miles. They state that if refills are changed according to this program and good oil is used that oil need not be changed.

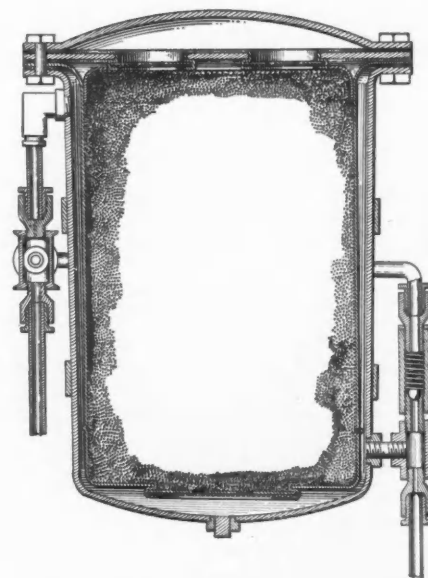
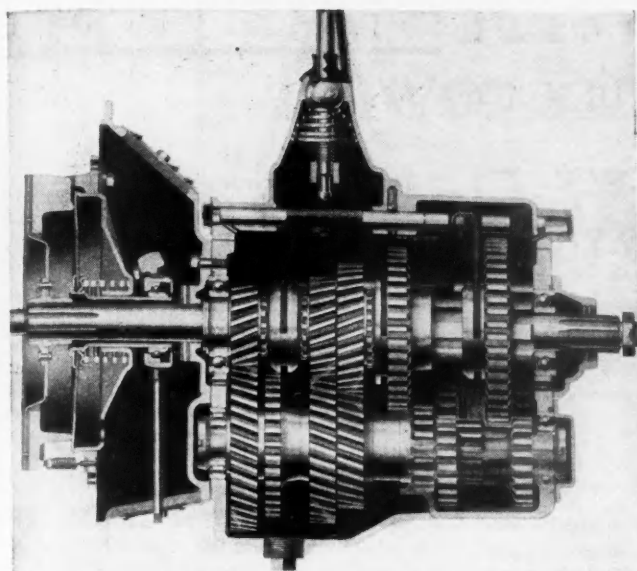


Diagram showing operating principle of the Briggs clarifier. Oil is forced upward through a container filled with Fuller's earth, a material used in oil refineries

THE COMMERCIAL CAR JOURNAL



Three sets of helical gears are used in the five-speed transmission of the new Brown-Lipe line

## B-L Has New Line of Helical Gear Transmissions

Four series are available for trucks rated from  $\frac{1}{2}$  to 7 tons. New features

THE Brown-Lipe division of the Spicer Mfg. Corp. has introduced a complete line of helical gear transmissions for trucks. The new transmissions are available in four- and five-speed models and an eight-speed type, the latter comprising a four-speed transmission with a two-speed reduction gear box built on the rear. The four-speed set has two sets of helical gears, for countershaft drive and quiet third; there are three sets of helicals in the five-speed set and the eight-speed assembly uses two sets of helical gears in the main transmission and two in the rear reduction box.

Features of the new transmissions include: a more rigid and compact single case, especially on the five-speed type; large diameter shafts, lower loads on gear teeth and bearings. Thrust from the helical gears is taken by ball bearings.

Four series comprise the new line, the 2000 series being adapted for trucks rated from  $\frac{1}{2}$  to 2 tons, 3000 series for trucks of 2 to 3 ton rating, the 5000 series for 4- to 5-tonners and the 7000 series for 5- to 7-ton trucks.

The five-speed models are furnished with direct on fourth and overdrive fifth or with direct on fifth. The eight-speed model can be furnished with an overdrive in the auxiliary gear box. The eight-speed units are available in three models, 3481, 5481 and 7481. Ratios of the 5481 are:

Low	9.10	5th	1.88
2nd	4.39	6th	1.76
3rd	3.90	7th	1.00
4th	2.34	8th	.75

A high speed reverse is optional in the lighter models, as shown in the table of ratios. Gears are case-hardened, nor-

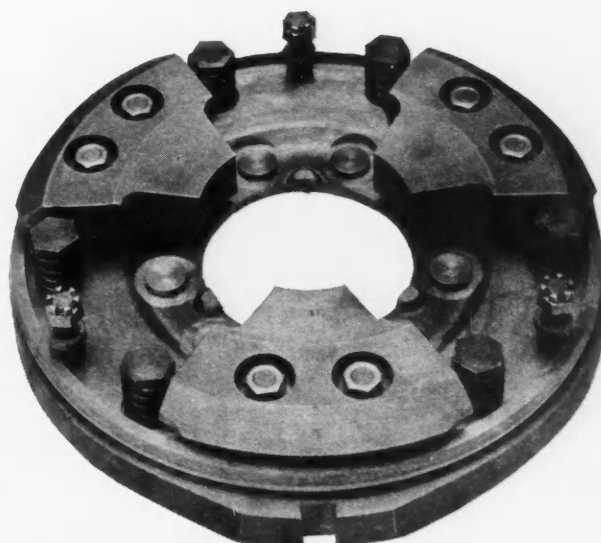
malized chrome nickel molybdenum forgings. Power take-offs can be installed on either side of the case.

The clutch throwout bearing is lubricated by a tube extending downward through a handhole cover on the bottom of the housing. The cover has a rubber insert with a slot permitting the tube to move with the throwout bearing when the clutch is released.

The transmissions can be furnished with single or double plate or multiple disk clutches and in addition the Spicer

Powerflo clutch is supplied. This clutch makes use of centrifugal force to apply pressure to the plate. The principle of operation of the passenger car and truck sizes is the same but the latter is adapted to mounting in a cup-shaped flywheel. When used with freewheeling the Powerflo clutch eliminates the use of the clutch pedal in all ordinary driving and when used without freewheeling the clutch pedal is not used except when shifting gears with the vehicle in motion.

	Model 2252	Model 2253	Model 2352	Model 2353	Model 3352	Model 3353
Direct on	5th	4th	5th	4th	5th	4th
Low Rev.	7.32	5.23	7.70	6.12	7.93	6.54
High Rev.	(Opt)	(Opt)	4.40	3.50	4.53	3.74
First	7.32	5.23	7.70	6.12	7.93	6.54
Second	4.25	3.60	4.55	3.62	4.58	3.77
Third	2.21	1.83	2.35	1.87	2.47	1.92
Fourth	1.40	1.00	1.45	1.00	1.46	1.00
Fifth	1.00	.78	1.00	.79	1.00	.77



Centrifugal weights engage the Powerflo clutch without pedal action as the engine is accelerated



# COMMERCIAL CAR JOURNAL NEWS

## Production Makes Big Gain

Motor truck production in the United States and Canada reached 36,632 in September of this year, as compared with 20,003 in September of 1932. Production for the nine months of 1933 was 281,697, which compares very favorably with the 196,786 units produced in the same period of 1932.

## Coyle Chevrolet G.M.

M. E. Coyle has been appointed general manager of Chevrolet. Mr. Coyle joined General Motors Corp. in 1911.

He appointed William E. Holler to succeed H. J. Klingler as general sales manager. Mr. Holler was formerly assistant general sales manager for Chevrolet in charge of the Eastern half of the United States.

## Kimmerling AC President

F. S. Kimmerling has been appointed president and general manager of AC Spark Plug Co. to succeed Harlow H. Curtice, who was made general manager of Buick Motor Co.

## Ford Show May Tour

Materials and parts suppliers, who contributed extensively to Ford Motor Co.'s Exposition of Progress in Detroit, report that they have been asked by the Ford company to contribute to shows in other key points in this country in the near future. According to the reports, it is Ford's intention to take his own "World's Fair Exhibit" to the people. It is estimated the show cost the Ford Motor Co. about \$100,000 for the week in Detroit, aside from the thousands expended by the suppliers.

## GM Costs Up \$21 per Car

General Motors labor costs under the NRA have increased approximately an average of \$21 per car, aside from labor increases on raw materials, William S. Knudsen, newly appointed executive vice-president, General Motors Corp., revealed. Such increases differ among the car companies involved. He did not commit himself regarding possible price changes for next year. It was made clear, however, that reductions certainly were not to be anticipated.

## Fruehauf Expands Body Plant

The Fruehauf Trailer Co., Detroit, is adding 40,000 sq. ft. of floor space to its body plant of the most modern type. When completed, early in December, this will be one of the largest and finest commercial body plants in the entire country.

## Dodge Sells 19,059 Trucks

For the period of 1933, ending Oct. 21, Dodge dealers sold a total of 19,059 trucks.

## Coming in December

**The Pennsylvania Railroad's nation-wide store-door collection and delivery service of less-than-carload freight which will become effective Dec. 1 will be described in detail in the December number of the Commercial Car Journal. The article will analyze the effect of the service on motor truck haulers.**

## Franz W. Cook

Franz W. Cook, 35, engineer for Carter Carburetor Corp., of St. Louis, was killed in an auto accident in Germany, where he had been assigned on an experimental matter.

## Charles H. Russell

Charles H. Russell, 39, manager of the national accounts division of The B. F. Goodrich Co. truck and bus tire department, died in Chicago following a heart attack.

## Louis Logie

Louis Logie, 53 years old, regional manager for Dodge Brothers in Cincinnati, died of a heart attack in his hotel room.

## Joseph Gerson

Joseph Gerson, president of the Duplex Truck Co. and partner in the Gerson-Carey Brass Foundry, both of Lansing, died of heart disease.

## Newton A. Wolcott

Newton A. Wolcott, 58, president of the Packard Electric Co., died at Warren, Ohio.

## Job Wanted

John J. Lanahan (35), 49 W. Eagle Rd., Upper Darby, Pa. Assistant to Transportation Executive. Experienced in operation, purchase and maintenance of trucks and cars. Can analyze and intelligently present operating cost. Can install and supervise record system for fleet. Five years with Texas Company. Three and one-half years with Amer. Tel. & Tel. Co. Available at once and can travel.

## Two New Winter Oils

Two new oils, designated as 20-W and 10-W and intended to facilitate starting, are being recommended by automotive manufacturers in their instruction books for 1934. Refiners are planning to supply these oils. The classification for these two new oils is as follows: Viscosity at 0 deg. F.—20-W, 40,000 maximum, 10,000 minimum; 10-W, 10,000 maximum, 5000 minimum.

## Steinbrink to New York

Herbert E. Steinbrink has been appointed manager of the New York branch of the Highway Trailer Co., 32-01 Queens Blvd., Long Island City. He has been transferred to this position from its Philadelphia branch. Mr. Steinbrink was formerly with the Sterling and La France Republic truck companies.

## Messerly, Secoy and Willetts

William F. Messerly has been made manager of the New York branch of the Fruehauf Trailer Co. Paul G. Secoy has been made branch manager for the Akron territory, and E. H. Willetts has charge of national accounts for the New York territory.

## Harris With Brandt-Warner

Sid. G. Harris, formerly sales engineer and eastern representative for Continental Motors Corp., is now employed in a similar capacity by Brandt-Warner Mfg. Co., York, Pa., maker of axle shafts. His headquarters are 33 West 60th St., New York City.

## B.L.M.A. Elects Littlefield

The Brake Lining Manufacturers' Association, Inc., elected W. Joseph Littlefield as general manager, secretary and assistant treasurer of the association with headquarters and new offices at 370 Lexington Avenue, Room 2400, New York City.

## Ray Heads Dealer Sales

United States Rubber Co. announces the appointment of J. C. Ray as manager of the automobile tire department, dealer sales.

## Salter Borg-Warner S.M.

William E. Salter of Dallas, Tex., has been named sales manager of the Borg-Warner Service Parts Co.

## Wagner Moves Branch

The Wagner Electric Corp. has moved its Cincinnati factory branch to a new building, facing the Parkway.

## Price of Glycerine Reduced

The Glycerine Producers' Association reports that the price of glycerine anti-freeze has been reduced to \$1.45 per gallon.

Power has *doubled!*  
Speed has *doubled!*

*but . . .*

# BENDIX B-K

## Controlled Vacuum POWER BRAKES

*make your brakes  
three times as effective!*

**S**INCE Bendix pioneered four-wheel braking, ten years ago, average engine power and average truck speeds have doubled. Traffic is multiplied. Emergencies are more numerous and more serious.

You've got to make quicker stops from these higher speeds . . . and *that takes power!*

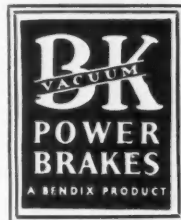
Power Braking means Bendix B-K Controlled Vacuum Power Braking, to 96 per cent of all owners of power brake equipped vehicles. Nine years of strenuous service, all over the world, under all kinds of conditions, have proved these great brakes beyond any reasonable argument. They're **RIGHT**—and they stay right!

Put them on any truck. Installation is a

short and simple job. Present braking system remains intact—undisturbed. Cost is extremely moderate.

Tractor-trailer operation, particularly, is a field where these powerful "muscle-multipliers" are almost a vital necessity. New state and municipal legislation in many localities virtually demands stopping ability which nothing less than Bendix B-K Power Brakes will deliver. *And the situation is growing steadily more acute.* The public is demanding, and the lawmakers are compelling, better stopping.

Write for full details about Bendix B-K Controlled Vacuum Power Brakes. Interesting to any truck man—engineer, builder, dealer or operator.



**BENDIX PRODUCTS CORPORATION**

401 Bendix Drive, South Bend, Indiana

(Subsidiary of Bendix Aviation Corporation)

## 17 States Fail to Agree

(CONTINUED FROM PAGE 11)

legislators, one from each of the two legislative houses, and the third member to be the motor vehicle administrator. New Jersey didn't favor setting up another agency, maintaining that there were enough groups now committed to uniformity, a display of "sentiment" which the resolution previously mentioned saw fit to ignore.

With so little of a constructive nature to guide it, it was no wonder the conference resolved its inability to frame code recommendations. The unpreparedness of the delegations to act constructively was, perhaps significantly, illustrated by the behavior of the Pennsylvania delegation. It was Pennsylvania, you know, which originally proposed the Interstate Conference. The excellent example it set in this regard was not sustained in the conference itself. Instead of maintaining its leadership Pennsylvania had not a single recommendation to make. Its spokesman contented himself with the observation that a perusal of the codes recommended by various highway and engineering bodies had convinced him that perhaps Pennsylvania had been a little too liberal in its restrictions and that "maybe we'll do away with some of the liberality."

### ● Two Other Resolutions

Two other resolutions were unanimously approved by the conference. One resolved that "it is the sense of this conference that there is a tendency toward a reduction of lengths and weights rather than an increase." The other declared "that the interests of taxpayers and private non-commercial motorists must be recognized as paramount in determining the dimensions and weight of motor vehicles."

The opening session of the conference was pervaded with an air of earnestness and seriousness which indicated that the speakers, at least, considered the occasion momentous and expected conclusions which would have a far-reaching effect.

Governor Gifford Pinchot, of Pennsylvania, welcomed the delegates and urged that the single principle, "the public good comes first," be the one on which deliberations proceed. "Use of the highways by the rank and file of the people is the fundamental use," he said. "All other uses should be regulated accordingly." He closed his brief talk deploring "the tendency toward gigantic trucks which endanger the lives of motorists." It was a grandstand finish slightly erroneous as to fact because for 5 years at least the tendency has definitely been the other way.

Chairman Toll sounded the keynote. "Present disharmonies between states cannot continue," he said. "One of two things must happen. Either the Federal Government must take over the States' powers or the States must learn to coordinate their activities." He added that not only the public but also the professional political scientists were watching this "experiment in cooperation" with great interest as something that "may sow the seeds of a new type of regional coordinated action of State governments." He termed the conference "an unprecedented attempt to establish inter-legislative action."

### ● Purposes of Conference

He told the delegates what they were there for: "In the hope of agreeing on a uniform code that shall specify how large and how heavy motor vehicles shall be and in the further hope of accomplishing not only this code but of setting up machinery for revising it from time to time as conditions warranted." His address carried the intimation that he expected the recommended code of the American Association of State Highway Officials to be the basis on which discussion would proceed. (This expectation was likewise apparent in all of the "viewpoint speeches" which followed directly.) Then cautioning the delegates that the views they were about to hear would be partisan and that "their task would be to give them judicial consideration as representatives of government," he opened the conference to expression of viewpoints by the different elements vitally involved in highway transportation regulation.

The public's viewpoint was interpreted by William J. Cunningham, professor of transportation, Harvard University. He urged strongly the need of uniformity.

"The last two decades," Professor Cunningham said, "have shown that commercial vehicles, within their proper sphere, certainly have characteristics which are of inherent value to the community. They have a definite economic advantage over railroads. The only grievance railroads have is when commercial trucks and buses compete for business beyond their economic limit."

Previously he had said that "no policy has yet been decided upon as to whether vehicles should be designed to fit highways or highways to fit vehicles." (Later on, in stating the policies of the U. S. Bureau of Public Roads, Mr. Fairbanks said that the Bureau favors building roads to fit vehicles that have now come into general use.) Professor Cunningham argued that "it is questionable if the

modern multi-lane highway was made necessary by the large bus and truck. It is a product of the modern motor era. It is not proper to say that the larger vehicles are responsible for the higher cost roads."

While not endorsing any code, he said the A.A.H.O. and U. S. Bureau of Public Roads recommended codes had worth because they were the products of long study. The former was a compromise, he declared, and under it more of the present limits would be lowered than increased. Any reasonable regulation of sizes and weights will have a limited effect, he pointed out, because it would control only a relatively small percentage of vehicles now in use.

The viewpoint of the private passenger automobile owner was presented by Ernest N. Smith, vice-president of the American Automobile Association. It was a jewel sparkling with fairness. Explaining that the A.A.A. has a membership of 1,000 motor clubs with 400,000 enrolled motorists, Mr. Smith said:

"The passenger car owner is reconciled to the fact that commercial vehicles have a just share in the highways. He wishes only to stabilize his relations with commercial vehicle operators to insure safety and comfort on the highways. As a citizen, he is a shipper and receiver of goods and must have unhampered use of highway transport."

### ● A.A.A. Endorses Code

The A.A.A., he said, endorses the AAHO code as possessing standards which provide the necessary prerequisites for safeguarding public interest and providing safety and comfort on the highways. He recommended, however, that a speed limit be included in the code because most of the criticisms of trucks and buses received from A.A.A. members is based on the fast driving of commercial vehicles.

Regulation of commercial vehicles, Mr. Smith warned, "cannot take into account the exigencies of any other form of transportation. Along such road lies grave danger to public welfare."

The general viewpoint of the shippers was given by Major Roy F. Britton, director of the National Highway Users Conference. The factors to be taken into consideration in devising uniform limits, he told the delegates, were safety, convenience of all users of highways, protection of highways from damage, and preservation of the efficiency of highway transportation to provide full economic value. He quoted from the Coolidge committee report that "we cannot invent restrictions for the bene-

(TURN TO PAGE 56 PLEASE)



# COMMERCIAL CAR JOURNAL'S TRUCK SPECIFICATIONS TABLE

*The Commercial Car Journal's Truck Specifications Table is brought up to date in each issue from data supplied monthly by truck manufacturers*

## KEY TO ABBREVIATIONS AND REFERENCE MARKS

### GENERAL

**Chassis Price**—Chassis price quoted applies to the standard wheelbase and specifications listed. All prices are F.O.B. factory.

\*\*\*—List price not yet established. Ready next issue.

**Tonnage Rating**—Where a spread of ratings is given the maximum ratings are for ideal operating conditions and the minimum for extremely difficult conditions; the ranges between are for varying operating conditions.

**Gross Vehicle Weight**—Is chassis weight, plus body and cab, plus payload. Gross vehicle weight given for a model is based on maximum recommended tire size and not on tires listed as standard equipment.

**Chassis Weight Stripped**—Includes gas, oil and water and all things included in chassis price. Does not include the weight of cab.

**Maximum Brake H. P. at Given R.P.M.**—Is actual dynamometer reading without accessories.

**Tractors**—Unless given the designation N (meaning not available as tractor), all standard models may be assumed to be available as tractors.

(N) Not available as tractor.

(T) This designation accompanying a model number indicates vehicle is specifically designed for tractor use only.

(3) Corbett—Larger engines and corresponding auxiliary units provided on all models at extra cost.

(4) Day Elder—Model 75—1½ ton—same specifications except price—\$945, and larger tire size—B6.00/20 front and D8.00/20 rear.

(5) Dodge—F-61 available as special tractor truck with 146-inch wheelbase with model designation of F-60, at \$2645. G-81 available as special tractor truck with 146-inch wheelbase with model designation of G-80, at \$5250. Model G-82 available as special tractor truck, with 146 in. wheelbase, with model designation of G-80 at \$5250 and with 170 in. wheelbase with model designation of G-81 at \$5285.

(5a) Dodge—Model H20, ¼-ton, gross vehicle weight 6,000 lb., price \$502, has same specifications as H30 except tires which are 7.50/17 and lighter rear springs.

(6) General Motors—Models T-18 to T-61 inclusive are also available for export only as coach chassis. Double reduction axles optional on Models T-43 T-51, T-61, T-83 and T-95 at extra cost. Trailing type axles available on Model T-95 at price deduction. Optional size engines available on Models T-85, T-85H, T-95, T-110 and T-130 at varying cost.

Gramm—Larger engines and corresponding auxiliary units provided on all models at extra cost when type of service demands. Wheelbases and body mounting dimensions may change to suit special requirements. Double reduction axles available on all models except AX and BX.

Gross weight indicated for each model in the table is the straight rating.

Series CXH is supplied with Hercules JXB engine in Model CXHB and Hercules JXC in Model CXHC.

(7) Grass Premier—Eight cylinder engines available on following models: 835 with Lye. GU at \$1515 list; 865 with Lye. HF at \$4230; 875 with Lye. AE at \$5400.

(8a) International Harvester—A-1, ¾ ton, same as A-2 except less spring leaves and smaller tires.

(8b) All Torque and Brake Horsepower values listed are based on engine outputs with all Standard Equipment Accessories running and are the same values obtaining with the truck on the road in actual operation.

(9) Le Moon—Model 600 available with Lye. AEC at same cost. Models 701 and 801 available with Waukesha 6SR1 at same cost.

(10) Sterling—Rocker arm used in place of springs

(\*) Sterling—These models also available equipped with Cummins Model H Diesel engine.

†Reo—Models 1C and 1D are the longer wheelbase editions of Models 1A and 1B. The frame dimension of both is 7x2¼x4. They are furnished at extra cost.

††Reo—2J, 2K same as 2H except 166 in. wheelbase and price of \$1895

††Reo—3J same as 3H except wheelbase of 170 in. and price of \$2085; 3K same as 3H except 185 in. wheelbase and price of \$2155; 3M same as 3H except 205 in. wheelbase.

(11) Studebaker—S-2 in 141 in. and 165 in. wheelbases has 6½ in. frame depth.

(12) White—Each model shown is furnished with different specifications for different tonnage ratings.

\*—Factory governed speed 2400 r.p.m.

(13) Marmon-Herrington—Available with Hercules Diesel engine at extra charge of \$1950

(14) Ford—Rear axle ratios 5.14 and 6.6 optional on 1½-ton trucks.

### MAKES—ALL

AB—American Bosch.

ALaF—American La France.

AL—Auto Lite.

B—Bendix.

BB—Borg & Beck.

BL—Brown-Lipe.

BO—Bendix front, Own rear.

Blo—Blood.

Bu or Bud—Buda.

BW—Borg Warner

BWs—Bendix front, Westinghouse rear

C or Col—Columbia.

Car—Carter.

Ch—Chicago.

CI—Ignition by compression.

Cl or Cla—Clark.

Cle—Cleveland.

Co—Covert (transmission).

Co—Covert (clutch)

Con—Continental.

Cot—Cotta Gear.

Cum—Cummins-Diesel

Det—Detroit Lubricator.

DG—Detroit Gear and Machine.

DR—Delco Remy.

Eat—Eaton.

Ei—Eisemann.

En—Governor built in engine

EV—Electro-Vac (gov.) Pierce.

Fe—Feeders.

Fu—Fuller.

Ge—Gemmer.

GO—G. & O.

Ha—Handy (governor).

Ha—Hannum (steering gear).

HaS—American Car & Fdry.

Her—Hercules.

Hr—Harrison

HS—Merchant & Evans (clutch).

HS—American Car & Fdry. (governor).

Jac—Saginaw.

Jo—Jones.

KP—Handy.

L—Lockheed.

LJ—Lipe, W. C.

LN—Leece Neville.

Lo—Long.

LO—Lockheed front, Own rear

LW—Lockheed front, Wisconsin rear.

Lyc—Lycoming.

Mc—McCord.

Ma—Marvel.

ME—Merchant & Evans.

MM—Mechanics Mach.

Mo—Modine (radiator).

Mo—Monarch (governor).

My—Mallory.

NE—North East.

No—Not supplied.

ns—No Standard.

O or Ow—Own.

Op or Opt—Optional.

Pe—Pierce (governor).

Pe—Perfex (radiator).

PS—Peters & Sneed.

RB—Robt. Bosch.

Ro—Rockford.

Ros—Ross.

Sc—Scintilla.

Sch—Wheeler-Schebler.

Snu—Shuler.

SpB—Spicer and Blood.

Spi—Spicer.

Ste or St—Sterling.

Str—Stromberg.

Tit—Tillotson.

T or Tim—Timken

TWH—Timken Wisconsin Herrington

WG—Warner Gear.

Wa—Waukesha (governor).

Wau—Waukesha.

W or Wis—Wisconsin

W—Westinghouse.

Yo—Young

Zen—Zenith.

### BRAKES—SERVICE

#### Location

2—Two Wheels, rear only.

2/4—Two-wheel brakes effective on all four wheels through driveshaft.

4/6—Brakes on four rear wheels effective on all wheels through driveshaft.

7/4—Brake on transmission effective on all four wheels through driveshaft.

4—Four Wheels, front and rear

4r—Four Wheels, rear only.

6—Six Wheels, front and rear.

J—Jackshaft.

P—Propeller shaft.

#### Type

I—Internal.

X—External.

#### Operation

A—Air.

D—Hydraulic and mechanical.

H—Hydraulic.

M—Mechanical.

V—Vacuum.

### BRAKES—HAND

#### Location

C—Center of double propeller shaft

2—Rear wheels.

4—Four wheels.

R—Worm or bevel gearshaft

T—Transmission.

F—Driveshaft.

#### Type

D—Tru-Stop disk.

I—Internal.

X—External.

### BRAKE DRUMS

#### Material

a—Cast alloy iron.

A—American Car Fdry.

C—Centrifuge

D—Dayton.

E—Ermalite.

G—Gunite.

H—Hunt Spiller.

c—Cast iron.

p—Pressed steel

P—Pressed steel.

s—Cast steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

### CLUTCH

#### Type

D—Multiple disk.

op—Double plate.

O—Plate in oil.

P—Single plate

### ENGINE

#### Valve Arrangement

F—Inlet valve in head; exhaust valve at side.

H—In head.

L—"T" head, valves at side.

T—Inlet and exhaust on opposite sides.

#### Camshaft Drive

C—Chain.

G—Gear.

#### Piston Material

A—Aluminum alloy.

B—Semi-steel.

C—Cast iron.

N—Nickel iron.

S—Aluminum alloy with strut.

#### Main Bearings

r—Rear main bearing.

#### Oiling System

CC—Pressure to main, connecting rod and camshaft bearings.

FP—Pressure to main, connecting rod camshaft bearings and piston pins.

PC—Pressure to mains and connecting rod bearings.

PG—Pump, gravity and splash.

PS—Pressure with splash.

### FRAME

#### Type

I—"I" Beam.

C—Channel.

T—Channel tapered front and rear.

L—Channel reinforced with liner.

B—Channel reinforced with both liner and fishplate.

P—Channel reinforced with plate.

TL—Channel tapered front and rear reinforced with liner.

D—Drop Center

Tf—Tapered front

X—x-Braced

### FUEL SYSTEM

#### Fuel Feed

E—Electric pump.

G—Gravity.

M—Mechanical pump.

P—Pressure.

V—Vacuum.

### REAR AXLE

#### Final Drive and Type

B—Bevel.

C—Chain.

D—Dead.

F—Full-floating

2—Double Reduction.

S—Spiral bevel.

W—Worm.

w/2—Worm or Double Reduction

Optional.

1/2—Semi-floating.

3/4—Three-quarter floating.

#### Drive and Torque

A—Radius Rods and Torque Arm.

H—Hotchkiss. (springs)

R—Radius Rods

T—Torque Arm.

U—Torque Tube.

### SPRINGS

#### Auxiliary Type

1/2—Semi-elliptic above or below main springs.

3/4—Quarter elliptic.

C—Coil spring.

N—No.

O—Optional.

### TIRES

B—Balloons.

DB—Dual Balloons.

P—High Pressure Pneumatics.

DP—Dual High Pressure Pneumatics

S—Solids.

DS—Dual Solids.

o—Pneumatics at extra cost.

### TRANSMISSION

#### Location

A—Amidships.

J—Unit with jackshaft.

U—Unit with engine.

#### Auxiliary Location

No—Not furnished.

O2—2 speed axle unit optional at extra cost.

Op—Optional at extra cost.

A—Amidships.

R—Rear of amidships main transmission.

U—Unit with engine.

### WHEELS DRIVEN

2C—Center pair of rear wheels

2R—Rear pair of rear wheels.

4F—Front and center pair of rear wheels.

4R—Four rear wheels

# COMMERCIAL CAR JOURNAL'S

CORRECTIONS ARE MADE EACH MONTH FROM DATA SUPPLIED DIRECT BY TRUCK MAKERS

Line Number	MAKE AND MODEL	GENERAL (See Keynote)				TIRE SIZE		MAJOR UNITS				FRAME								
		Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	ENGINE		TRANSMISSION		REAR AXLE						
										Make and Model	No. of Cylinders Bore and Stroke	Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model	Gear and Type	GEAR RATIOS		Side Rail Dimensions	Type
																	In High	In Low		
1	A.C.F.	160 6	6950	186	222	26000	10170	B9.75/22	B9.75/22	Has 160	6-4 1/4 x 5 1/2	BL 1714	U 4 Op	Tim 76730	2F	R 7.46 52.7	8x3	P	1468	
2	175B	6 1/2	8300	186	222	26000	10750	B10.50/22	B10.50/22	Has 175	6-5 1/2 x 5 1/2	BL 714	U 4 Op	Tim 76730	2F	R 7.46 52.7	8x3	P	2707	
3	175A	7 1/2	8800	186	240	30000	11610	B10.50/24	B10.50/24	Has 175	6-5 1/2 x 5 1/2	BL 714	U 4 Op	Tim 76730	2F	R 7.46 52.7	8x3	P	3707	
4	Armleder	2-3	1570	156	195	11500	4070	B7.00/20	DB7.00/20	Con 16C	6-3 3/4 x 4 1/4	Fu WOB	U 4 No	Tim	BF	H 5.83 31.2	6x3 1/4	P	4248	
5	21Ha	2 1/2-4	2185	160	207	15300	4783	B8.25/20	DB8.25/20	Her WXC	6-3 3/4 x 4 1/4	Fu MLU	U 4 No	Tim	BF	H 6.06 38.5	6x3 1/4	P	5298	
6	31Ha	3 1/2-5	2745	146	213	19500	5838	B9.00/20	DB9.00/20	Her WXC	6-4 1/4 x 4 1/4	Fu MGU	U 4 No	Tim	BF	R 6.02 39.2	7x3 1/4	P	6339	
7	41Ha	4-5 1/2	3050	160	227	23000	6600	B9.75/20	DB9.75/20	Her WXC	6-4 1/4 x 4 1/4	Fu MGU	U 4 No	Tim	BF	R 6.83 43.8	7x3 1/4	P	7339	
8	61Ha	5-7	3625	146	227	24000	7400	B9.75/20	DB9.75/20	Her WXC2	6-4 1/4 x 4 1/4	Fu MGU	U 4 No	Tim	WF	R 8.5 55.2	8 1/2 x 3 1/4	P	8360	
9	71Ha	7-9	4595	164	235	29500	7800	B10.50/20	DB10.50/20	Her YXC	6-4 1/4 x 4 1/4	Fu VUOG	U 5 No	Tim	WF	R 8.5 55.2	8 1/2 x 3 1/4	P	9428	
10	TRDA	10	3895	148	174	39000	6450	B9.75/20	DB9.75/20	Her YXC3	6-4 1/4 x 4 1/4	Fu VUOG	U 5 No	Wls	2F	R 7.8 56.8	7x3 1/4	P	10478	
11	Autocar	RG 2 1/2	3000	150	192	11000	6100	P34x7	DP34x7	Ow D	6-3 3/4 x 4 1/4	Ow D	U 4 No	Ow D	2F	H 6.21 39.3	8x3 1/4	T	11314	
12	D3	3	3500	150	192	11000	6140	P34x7	DP34x7	Ow SD	6-4 1/4 x 4 1/4	Ow SD	U 4 No	Ow D	2F	H 6.21 39.3	8x3 1/4	T	12378	
13	DF 3 1/2	3 1/2	3950	150	192	11000	7010	B9.00/20	DB9.00/20	Ow SD	6-4 1/4 x 4 1/4	Ow SD	U 4 No	Ow TE	2F	H 6.43 40.7	8x3 1/4	T	13358	
14	DH 4	4	4150	150	174	7400	7400	P36x8	DP36x8	Ow SD	6-4 1/4 x 4 1/4	Ow SD	U 4 No	Ow N	2F	H 8.57 54.3	8x3 1/4	T	14358	
15	N 4	4	4650	191	227	8275	8275	B9.75/20	DB9.75/20	Ow SCH	6-4 1/4 x 4 1/4	Ow D	U 5 No	Ow N	2F	H 7.20 45.6	10x3 1/4	T	15404	
16	NF 5	5	4750	151	227	8370	8370	B9.75/22	DB9.75/22	Ow SCH	6-4 1/4 x 4 1/4	Ow D	U 5 No	Ow TF	2F	H 7.20 42.1	10x3 1/4	T	16404	
17	S 5	5	5500	168	168	9675	9675	B9.75/22	DB9.75/22	Ow SCH	6-4 1/4 x 4 1/4	Ow D	U 4 A 3	Ow CG	2F	H 8.52 54.0	9x3 1/4	T	17404	
18	C 7 1/2	7 1/2	6650	158	176	11784	11784	B10.50/24	DB10.50/24	Ow SCM	6-4 1/4 x 4 1/4	BL 734	U 4 A 3	Wls 78720	2F	H 9.92 121.0	10 1/2 x 3 1/4	T	18433	
19	CE 7 1/2	7 1/2	6000	172	203	10300	8367	DS40x8	Ow SCM	6-4 1/4 x 4 1/4	Ow D	U 4 A 3	Ow N	2F	H 8.57 52.6	9x3 1/4	T	19453		
20	CBS 7 1/2	7 1/2	6200	203	203	9800	9429	DP42x9	Ow SCM	6-4 1/4 x 4 1/4	Ow B	U 4 A 3	Ow N	2F	H 8.57 52.6	9x3 1/4	T	20453		
21	TE 7 1/2	7 1/2	5900	192	242	9680	9680	B10.50/22	DB10.50/22	Ow SCM	6-4 1/4 x 4 1/4	Ow D	U 5 No	Ow TG	2F	H 7.20 45.6	10x3 1/4	T	21453	
22	TE 8	8	6300	214	228	10020	10020	B9.75/22	DB9.75/22	Ow SCM	6-4 1/4 x 4 1/4	BL 735	U 5 No	Ow CG	2F	H 7.20 45.6	10 1/2 x 3 1/4	T	22453	
23	(Eng. und. seat) UD 3	3	3500	97	145	6740	6740	P34x7	DP34x7	Ow SD	6-4 1/4 x 4 1/4	Ow D	U 4 No	Ow H & D	2F	H 6.21 39.3	8x3 1/4	T	23358	
24	UDF 3 1/2	3 1/2	3950	127	145	7655	7655	B9.00/20	DB9.00/20	Ow SD	6-4 1/4 x 4 1/4	Ow D	U 5 No	Ow TE	2F	H 6.43 40.7	8x3 1/4	T	24358	
25	UN 4	4	4650	96	163	8635	8635	B9.75/20	DB9.75/20	Ow SCH	6-4 1/4 x 4 1/4	Ow D	U 5 No	Ow C & N	2F	H 7.20 45.6	10x3 1/4	T	25404	
26	UNF 5	5	4850	128	163	9200	9200	B9.75/22	DB9.75/22	Ow SCH	6-4 1/4 x 4 1/4	Ow D	U 5 No	Ow TF	2F	H 7.20 42.1	10x3 1/4	T	26404	
27	US 5	5	5300	109	109	9115	9115	B9.75/22	DB9.75/22	Ow SCH	6-4 1/4 x 4 1/4	Ow D	U 4 No	Ow CG&TG	2F	H 7.20 45.6	10x3 1/4	T	27404	
28	UT 6	6	5900	128	163	9660	9660	B10.50/22	DB10.50/22	Ow SCM	6-4 1/4 x 4 1/4	Ow D	U 5 No	Ow CG&TG	2F	H 7.20 45.6	10x3 1/4	T	28453	
29	UTE 8 1/2	8 1/2	6300	141	163	10525	10525	B9.75/22	DB9.75/22	Ow SCM	6-4 1/4 x 4 1/4	Ow D	U 4 A 3	Ow CG&TG	2F	H 7.20 45.6	10 1/2 x 3 1/4	T	29453	
30	Available	W140 2	1350	Op	Op	11400	4000	B7.00/20	DB7.00/20	Wau ZK	6-3 3/4 x 4 1/4	WG T9	U 4 No	Tim 53200	SF	H 6.6 42.2	10x2 1/2 x 1/2	TX	30453	
31	W200 2 1/2	2 1/2	1850	Op	Op	13400	4500	B7.50/20	DB7.50/20	Wau TL	6-3 3/4 x 4 1/4	BL 224	U 4 No	Tim 54300	SF	H 6.8 43.5	10x2 1/2 x 1/2	TX	31255	
32	W230 3	3	2250	Op	Op	16300	5500	B8.25/20	DB8.25/20	Wau G-90	6-3 3/4 x 4 1/4	BL 234	U 4 No	Tim 56200	SF	R 7.4 47.4	12x2 1/2 x 1/2	TX	32255	
33	W300 3 1/2	3 1/2	2750	Op	Op	20700	7000	B9.00/20	DB9.00/20	Wau 6-110	6-4 1/4 x 4 1/4	Fu 5A-380	U 5 No	Tim 58205	SF	R 7.8 54.6	12x2 1/2 x 1/2	TX	33358	
34	W400 4	4	3750	Op	Op	25500	8200	B9.75/20	DB9.75/20	Wau 6-125	6-4 1/4 x 4 1/4	BL 615	U 5 No	Tim 65720H	WF	H 8.5 55.6	12x2 1/2 x 1/2	TX	34462	
35	Biederman	10 1-1 1/2	895	130	160	6000	2800	B6.50/18	DB6.50/18	Con 25A	6-3 3/4 x 4 1/4	BL 124	U 4 No	CLA B373	BF	H 5.31 31.6	7x3 1/4	T	35215	
36	10 1-1 1/2	1-1 1/2	1195	145	175	8000	3200	B6.00/20	DB6.00/20	Con 25A	6-3 3/4 x 4 1/4	BL 124	U 4 No	CLA B373	BF	H 6.37 39.4	7x3 1/4	T	36215	
37	25 1-1 1/2	1-1 1/2	1250	160	175	10000	3450	B6.50/20	DB6.50/20	Con 25A	6-3 3/4 x 4 1/4	BL 124	U 4 No	CLA B373	BF	H 6.37 39.4	7x3 1/4	T	37215	
38	30 1-1 1/2	1-1 1/2	1495	163	178	12000	4100	B7.50/20	DB7.50/20	Con 25A	6-3 3/4 x 4 1/4	BL 124	U 4 No	CLA B611	BF	R 6.37 39.4	7x3 1/4	T	38215	
39	35 2-2 1/2	2-2 1/2	1850	146	188	12000	4680	B7.50/20	DB7.50/20	Her JXC	6-3 3/4 x 4 1/4	BL 234	U 4 Op	CLA B611	BF	R 6.37 40.8	7x3 1/4	T	39282	
40	40 2-2 1/2	2-2 1/2	2100	158	188	16000	4840	B8.25/20	DB8.25/20	Her JXC	6-3 3/4 x 4 1/4	BL 234	U 4 Op	CLA B611	BF	R 6.37 40.8	8x3 1/4	T	40282	
41	50 3-3 1/2	3-3 1/2	2400	176	188	20000	5600	B9.00/20	DB9.00/20	Her JXC	6-3 3/4 x 4 1/4	BL 234	U 4 Op	CLA B805	BF	R 6.42 41.2	8x3 1/4	T	41282	
42	55 3-3 1/2	3-3 1/2	2750	186	209	23000	6450	B9.00/20	DB9.00/20	Con E602	6-4 1/4 x 4 1/4	BL 532	U 4 Op	CLA B805	BF	R 6.42 41.2	8x3 1/4	T	42282	
43	60 3-3 1/2	3-3 1/2	3150	170	200	24000	6820	B9.75/20	DB9.75/20	Con E602	6-4 1/4 x 4 1/4	BL 524	U 4 Op	CLA B805	BF	H 7.17 52.1	8x3 1/4	T	43361	
44	70 3-3 1/2	3-3 1/2	3600	150	210	24000	7530	B9.75/20	DB9.75/20	Con E602	6-4 1/4 x 4 1/4	BL 524	U 4 Op	Wls 1237	2F	H 8.00 58.7	8x3 1/4 x 1/2	T	44361	
45	80 5-7	5-7	3900	150	210	28000	7800	B10.50/20	DB10.50/20	Con E603	6-4 1/4 x 4 1/4	BL 524	U 4 Op	Wls 1237	2F	H 8.94 65.1	8x3 1/4 x 1/2	T	45383	
46	80C 1-1 1/2	1-1 1/2	1185	149	168	10500	4035	B6.50/20	DB6.50/20	Con 26B	6-3 3/4 x 4 1/4	Wa T9	U 4 No	Tim 53200H	SF	H 5.66 36.2	7 1/2 x 2 1/2 x 1/2	T	46214	
47	90C 2-2 1/2	2-2 1/2	1485	149	186	12500	4480	B7.00/20	DB7.00/20	Con 28B	6-3 3/4 x 4 1/4	Wa T9	U 4 No	Tim 54300H	SF	H 5.83 37.1	7 1/2 x 2 1/2 x 1/2	T	47248	
48	100C 2-2 1/2	2-2 1/2	1800	168	200	15000	4985	B7.50/20	DB7.50/20	Con 28B	6-3 3/4 x 4 1/4	Fu	U 5 No	Tim 54300H	SF	H 5.83 46.0	7 1/2 x			



# TRUCK SPECIFICATIONS TABLE

FOR MEANING OF ABBREVIATIONS AND EXPLANATION OF REFERENCE MARKS SEE PAGE 41

Line Number	ENGINE DETAILS										FUEL SYST.	ELEC. TRICAL	FRONT AXLE	BRAKES		BODY MOUNTING DATA		SPRINGS		Auxiliary Type											
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	MAIN BEARINGS		Oiling System Type				Governor Make	Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make	Clutch Type and Make		Radiator Make	Universal Make	Make and Model	Steering Gear Make	Nake, Location Type, Operation	Lining Area	Drum Material	Hand Location, Type	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame
								Number and Diameter	Length																						
P	1468	4.4	322	43.3	120-2200	H	C	A	7-3 1/4	10%	CC	Ha	Zen	VDR	DR	P.B.L	Lo	Spl	Tim 27451	Ros	O41A	720 A	CD	172	102	33 1/2	42x3	56x4	1/2		
P	707	4.4	500	60	175-2200	H	C	A	7-3 1/4	14%	CC	Ha	Zen	MDR	DR	P.B.B	Lo	Spl	Tim 27451	Ros	O41A	816 A	CD	172	102	33 1/2	42x3	56x4	1/2		
P	248	5.0	150	27.3	65-2600	L	G	C	C	7-2 1/2	10%	CC	No	MAL	AL	D.B.B	Yo	Spl	Tim	Ros	L41H	380 G	TX	129 1/2	Opt	31 1/2	40x2 1/2	50x3	1/2		
P	298	4.7	192	33.7	66-2200	L	G	C	C	7-2 1/2	10%	CC	No	MAL	AL	D.B.B	Yo	Spl	Tim	Ros	L41HV	452 G	TX	129 1/2	Opt	31 1/2	40x2 1/2	50x3	1/2		
P	339	4.7	225	38.4	73-2200	L	G	C	C	7-2 1/2	13%	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Tim	Ros	L41HV	578 G	TX	106	Opt	31 1/2	40x2 1/2	62 1/2 x 2 1/2	54x3	1/2
P	339	4.7	225	38.4	73-2200	L	G	C	C	7-2 1/2	13%	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Tim	Ros	L41HV	658 G	TX	106	Opt	31 1/2	40x2 1/2	62 1/2 x 2 1/2	54x3	1/2
P	360	4.7	238	40.3	80-2200	L	G	C	C	7-2 1/2	13%	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Shu	Ros	L41HV	768 G	TX	106	Opt	31 1/2	41x2 1/2	62 1/2 x 2 1/2	54x3	1/2
P	428	7.7	280	46	93-2200	L	G	C	C	7-3 1/4	15%	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Shu	Ros	L41HV	893 G	TX	118	Opt	31 1/2	41x2 1/2	62 1/2 x 3	54x3	1/2
P	474	4.4	318	51.2	103-2200	L	G	C	C	7-3 1/4	15%	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Tim	Ros	L41HV	658 G	TX	92 1/2	Opt	31 1/2	41x2 1/2	62 1/2 x 3	54x3	1/2
P	1314	5.2	213	33.7	75-2400	L	G	C	C	7-3 1/4	12%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 31000	Ros	L41DV	450 c	2I	124 1/2	72 1/2	34 1/2	40x2 1/2	54x3	1/2	
P	1358	5.2	240	38.4	84-2500	L	G	C	C	7-3 1/4	12%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 33000	Ros	L41DV	450 c	2I	115 1/2	63 1/2	34 1/2	40x2 1/2	54x3	1/2	
P	1358	5.2	240	38.4	84-2500	L	G	C	C	7-3 1/4	12%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 35000	Ros	L41DV	519 c	2I	115 1/2	63 1/2	34 1/2	42 1/2 x 3	54x3	1/2	
P	1358	5.2	240	38.4	84-2500	L	G	C	C	7-3 1/4	12%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 35000	Ros	L41DV	519 c	2I	115 1/2	63 1/2	34 1/2	42 1/2 x 3	54x3	1/2	
P	1404	5.1	271	43.4	94-2500	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 35000	Ros	L41DV	519 c	FD	174 1/2	104 1/2	34 1/2	40x2 1/2	54x3	1/2	
P	1404	5.1	271	43.4	94-2500	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 35000	Ros	L41DV	543 c	FD	122 1/2	74 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6	101-2400	L	G	C	C	7-3 1/4	14%	FP	Ow	Str	MAL	DR	DR	Lo	GO	Tim 27450	Ros	L41DV	660 c	FD	121 1/2	73 1/2	34 1/2	42 1/2 x 3	54 1/2 x 4	1/2	
P	1453	5.1	309	48.6																											



Line Number	MAKE AND MODEL	GENERAL (See Keynote)					TIRE SIZE		MAJOR UNITS.										FRAME				
		Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	ENGINE	TRANSMISSION	REAR AXLE				GEAR RATIOS		Side Rail Dimensions	Type				
												Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model	Gear and Type	Drive and Torque			In High	In Low		
Line Number	MAKE AND MODEL	Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	Make and Model	No. of Cylinders Bore and Stroke	Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model	Gear and Type	Drive and Torque	In High	In Low	Side Rail Dimensions	Type	Line Number	Piston Displacement
1	Diamond T. 410A3	1795	160	194	15000	5400	B7.50/20	DB7.50/20	DB7.50/20	Her WXC	6-4x4 1/2	Cla R909	U5	No	Cla B642	SF	H Opt	Opt	6 1/2 x 3 1/2	P	1339	5	
2	(Concluded) 3763	1695	155	179	15000	5000	B7.50/20	DB7.50/20	DB7.50/20	Her JXC	6-4x4 1/2	Cla R103	U5	No	Wis 4916L	2F	R Opt	Opt	6 1/2 x 3 1/2	P	2382	5	
3	5104	2095	168	201	18000	6400	B7.00/20	DB8.25/20	DB8.25/20	Her WXC	6-4x4 1/2	Cla R909	U5	No	Tim 58205H	2F	R Opt	Opt	6 1/2 x 3 1/2	P	4339	5	
4	4254	2395	160	194	18000	6200	B8.25/20	DB8.25/20	DB8.25/20	Her WXC	6-4x4 1/2	Cla R909	U5	No	Wis 70000	2F	R Opt	Opt	6 1/2 x 3 1/2	P	4339	5	
5	603A5	3300	169	230	20000	8100	B9.00/20	DB9.00/20	DB9.00/20	Her YXC	6-4x4 1/2	Co SA5	A5	Op	Wis 1237H	2F	R Opt	Opt	6 1/2 x 3 1/2	P	6384	5	
6	525	2695	168	201	20000	7200	B9.00/20	DB9.00/20	DB9.00/20	Her WXC3	6-4x4 1/2	Cla R909	A5	Op	Wis 1237H	2F	R Opt	Opt	6 1/2 x 3 1/2	P	6384	5	
7	740 5-6	3900	178	232	22000	8500	B9.75/20	DB9.75/20	DB9.75/20	Her RXB	6-4x4 1/2	Co SA5	A5	Op	Wis 1237H	2F	R Opt	Opt	7 1/2 x 3 1/2	P	6384	5	
8	750 5-7	4600	178	232	28000	10000	B9.75/22	DB9.75/22	DB9.75/22	Her RXC	6-4x4 1/2	Co SA5	A5	Op	Wis 1737 KW	2F	R Opt	Opt	7 1/2 x 3 1/2	P	6384	5	
9	750H 5-7	4200	178	232	28000	10000	B9.75/20	DB9.75/20	DB9.75/20	Her RXC	6-4x4 1/2	Co SA5	A5	Op	Wis 1737H	2F	R Opt	Opt	7 1/2 x 3 1/2	P	6384	5	
10	1515 7 1/2	6800	171	Op	36000	12000	B10.50/24	DB10.50/24	DB10.50/24	Her HXB	6-5x6	BL 744	A4	A3	Wis 79730	2F	R Opt	Opt	9 1/2 x 3 1/2	P	10707	5	
11	Differential. E-131	3200	160	160	18100	5100	B9.00/20	DB9.00/20	DB9.00/20	Lyc ASD	6-3 1/2 x 4 1/2	BL 314	U4	No	Tim 58200	BF	H 7.8	51.4	12x2 1/2 x 1 1/2	P	11299	4	
12	Dodge Bros. HC	340	111	111	18100	5100	B5.25/17	DB5.25/17	DB5.25/17	Own	6-3 1/2 x 4 1/2	Own	U3	No	Own	SF	H 4.7	12.2	5 1/2 x 2 1/2 x 1 1/2	C	12190	5	
13	HCL	365	119	119	18100	5100	B5.25/17	DB5.25/17	DB5.25/17	Own	6-3 1/2 x 4 1/2	Own	U3	No	Own	SF	H 4.7	12.2	5 1/2 x 2 1/2 x 1 1/2	C	13201	5	
14	H20 3 1/2-1	502	131	157	6075	2667	B7.00/20	DB7.00/20	DB7.00/20	Own	6-3 1/2 x 4 1/2	Own	U4	No	Own	SF	H 5.86	37.5	6 1/2 x 2 1/2 x 1 1/2	C	14337	5	
15	(5a) H33 1 1/2-2	490	131	157	8400	2612	B6.00/20	DB6.00/20	DB6.00/20	Own	6-3 1/2 x 4 1/2	Own	U4	No	Own	SF	H 5.85	37.4	6 1/2 x 2 1/2 x 1 1/2	C	15201	5	
16	H33 3 1/2-3	795	136	165	11000	3350	B7.00/20	DB7.00/20	DB7.00/20	Own	6-3 1/2 x 4 1/2	Own	U4	No	Own	SF	H 6.37	46.0	8 1/2 x 2 1/2 x 1 1/2	C	16217	5	
17	H43 2-3	795	136	165	11000	3350	B7.00/20	DB7.00/20	DB7.00/20	Own	6-3 1/2 x 4 1/2	Own	U5	No	Own	SF	H 6.37	46.0	8 1/2 x 2 1/2 x 1 1/2	C	17217	5	
18	F-40 2 1/2-3 1/2	1995	150	190	16000	5173	B6.50/20	DB6.50/20	DB6.50/20	Own	6-3 1/2 x 4 1/2	Own	U4	No	Own	SF	H 6.38	43.7	9 1/4 x 3 1/2 x 1 1/2	C	18309	4	
19	(5) F-61 3 1/2-5 1/2	2575	170	195	20000	5789	P32x6	DP32x6	DP32x6	Own	6-3 1/2 x 4 1/2	Own	U4	No	Own	SF	H 7.12	48.8	10 1/2 x 3 1/2 x 1 1/2	C	19241	5	
20	(5) G-82 4 1/2-5 1/2	5350	195	220	25000	8040	B9.75/20	DB9.75/20	DB9.75/20	Own	8-3 1/2 x 5	Own	U5	No	Own	SF	H 7.71	69.6	10 1/2 x 3 1/2 x 1 1/2	C	20309	4	
21	Duplex. S	3600	160	Op	15000	5600	B8.25/20	DB8.25/20	DB8.25/20	Bud K325	6-3 1/2 x 4 1/2	BL 324	U4	No	Tim 65200	WF	H 6.75	36.2	6 1/2 x 3 1/2 x 1 1/2	C	21242	4	
22	FAC 3 1/2-4	4250	176	Op	16500	7200	S34x5	S36x8	S36x8	Bud EBU-I	4-4 1/2 x 5 1/2	BL 51	U5	No	Tim 65706	WF	H 8.50	45.5	7 1/2 x 3 1/2 x 1 1/2	C	22342	4	
23	SAC 3 1/2-4	4750	172	Op	18000	7400	B9.75/20	DB9.75/20	DB9.75/20	Bud K428	6-4 1/2 x 5 1/2	BL 55	A7	No	Tim 75620	WF	H 8.50	45.1	7 1/2 x 3 1/2 x 1 1/2	C	23424	4	
24	M 5-7	5200	172	Op	21000	8000	B10.50/20	DB10.50/20	DB10.50/20	Bud L525	6-4 1/2 x 5 1/2	BL 60	A7	No	Tim 68750	w2F	R Opt	Opt	9 1/2 x 3 1/2 x 1 1/2	C	24424	4	
25	MI 7-8	7600	168	Op	28000	10000	P34x7	DS36x7	DS36x7	Bud GL6	6-4 1/2 x 5	BL 70	A7	No	Tim 76720	WF	R Opt	Opt	9 1/2 x 3 1/2 x 1 1/2	C	25424	4	
26	Esco 233 2-2 1/2	2360	165	205	15000	5900	B7.50/20	DB7.50/20	DB7.50/20	Con E603	6-4 1/2 x 4 1/2	Cl 105R	U5	No	Cla B642	BF	H 5.75	40.7	6 1/2 x 3 1/2 x 1 1/2	C	26424	4	
27	Fageol 102 1 1/2-2 1/2	1850	148	172	11200	4000	B6.00/20	DB6.00/20	DB6.00/20	Wau ZK	6-3 1/2 x 4 1/2	WG T9	U4	No	Tim 53200H	BF	H 5.66	36.2	6 1/2 x 3 1/2 x 1 1/2	C	27424	4	
28	135 2-3	2050	161	177	13400	5400	B7.50/20	DB7.50/20	DB7.50/20	Wau 6-90	6-3 1/2 x 4 1/2	BL 234	U4	No	Tim 54200H	BF	H 5.83	37.3	6 1/2 x 3 1/2 x 1 1/2	C	28424	4	
29	250 2 1/2-4	2750	178	196	16300	7500	B8.25/20	DB8.25/20	DB8.25/20	Wau 6-110	6-4 1/2 x 4 1/2	BL 524	U4	No	Tim 56200H	BF	H 6.16	40.8	8 1/2 x 3 1/2 x 1 1/2	C	29424	4	
30	300 3-5	3000	182	200	20700	8200	B9.00/20	DB9.00/20	DB9.00/20	Wau 6-110	6-4 1/2 x 4 1/2	BL 524	U4	No	Tim 58200H	BF	H 6.83	45.1	8 1/2 x 3 1/2 x 1 1/2	C	30424	4	
31	370 5-6	5000	182	200	25300	9700	B9.75/20	DB9.75/20	DB9.75/20	Wau 6-125	6-4 1/2 x 5 1/2	BL 714	U4	A3	Tim 65720H	WF	H 5.69	33.9	7 1/2 x 3 1/2 x 1 1/2	C	31424	4	
32	470 6-7	5500	182	200	33000	10100	B9.75/20	DB9.75/20	DB9.75/20	Wau 6-125	6-4 1/2 x 5 1/2	BL 714	U4	A3	Tim 66720	WF	H 5.69	33.9	7 1/2 x 3 1/2 x 1 1/2	C	32424	4	
33	Federal. DM	900	120	120	8000	3050	B6.00/20	P32x6	P32x6	Con W10	4-3 1/2 x 4 1/2	WG T9	U4	No	Cla B374	SF	H 5.67	38.2	6 1/2 x 3 1/2 x 1 1/2	D	33424	4	
34	15 1 1/2	695	137	174	10000	3500	B6.00/20	P32x6	P32x6	Her JXA	6-3 1/2 x 4 1/2	WG T9	U4	No	Cla B374	SF	H 5.67	38.2	6 1/2 x 3 1/2 x 1 1/2	D	34424	4	
35	25 2 1/2	1095	137	187	12000	3900	B6.50/20	DB6.50/20	DB6.50/20	Her JXB	6-3 1/2 x 4 1/2	WG T9	U4	No	Tim 54200H	SF	H 6.80	43.5	8 1/2 x 2 1/2 x 1 1/2	T	35424	4	
36	25 2 1/2	1395	137	201	14000	4500	B7.00/20	DB7.00/20	DB7.00/20	Her JXC	6-3 1/2 x 4 1/2	Cla R100	U5	No	Cla B640	SF	H 6.38	45.2	8 1/2 x 2 1/2 x 1 1/2	T	36424	4	
37	T3W 3 1/2-3	1850	148	172	11200	5110	P32x6	P32x6	P32x6	Wau V	4-3 1/2 x 4 1/2	Own 7754	A4	No	Tim 64603H	W/L	H 7.25	36.3	6 1/2 x 3 1/2 x 1 1/2	C	37424	4	
38	T3WFA 3 1/2-3	1795	148	185	16000	5400	P32x6	DP32x6	DP32x6	Wau V	4-3 1/2 x 4 1/2	Own 7754	A4	No	Tim 65001H	WF	H 8.75	43.8	8 1/2 x 3 1/2 x 1 1/2	C	38424	4	
39	30 3 1/2-3	1945	175	237	19000	6050	B8.25/20	DB8.25/20	DB8.25/20	Wau 6MS	6-3 1/2 x 4 1/2	Cla R100	U5	No	Cla B642	SF	H 6.45	45.5	10 1/2 x 3 1/2 x 1 1/2	C	39424	4	
40	40 3 1/2-4	2340	175	237	19000	6550	B9.00/20	DB9.00/20	DB9.00/20	Wau 6MK	6-4 1/2 x 4 1/2	Cla R900	U5	No	Tim 58200H	SF	H 6.83	45.5	10 1/2 x 3 1/2 x 1 1/2	T	40424	4	
41	40DR 3 1/2-4	2550	165	230	19000	6645	P34x7	DP34x7	DP34x7	Wau 6MK	6-4 1/2 x 4 1/2	Cla R900	U5	No	Tim 58200H	SF	H 6.83	45.5	10 1/2 x 3 1/2 x 1 1/2	T	41424	4	
42	T10DR-T10W 3 1/2-4	2685	165	230	19000	6645	P34x7	DP34x7	DP34x7	Con 18R	6-4 1/2 x 4 1/2	Own 7784	A4	No	Tim 58200H	SF	H 6.83	45.5	10 1/2 x 3 1/2 x 1 1/2	T	42424	4	
43	A600T 3 1/2-4	2045	152	206	1																		

[illegible]



Line Number	MAKE AND MODEL	GENERAL (See Keynote)					TIRE SIZE		MAJOR UNITS										FRAME		
		Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	ENGINE	TRANSMISSION	REAR AXLE		GEAR RATIOS	Side Rail Dimensions	Type					
												Location and Forward Speeds	Aux. Location and Speeds				Make and Model	Gear and Type	Drive and Torque	In High	In Low
1	Hug. (Concluded)	42K3	2393	146	201	16500	7300	B9.00/20	DB9.00/20	Bud K369	6-4x4x4	BL 51-5	U5	No	Cla B805	SF	H7.12	42.0	8x3x1/4	T	1369
2		703	3435	122	122	19500	7535	B9.00/20	DB9.00/20	Bud K369	6-4x4x4	Fu 5A380	U5	No	Wis 70000Q	2F	H9.05	64.0	6x3x1/4	T	1369
3		87K3	4300	128	128	22400	7600	B9.75/20	DB9.75/20	Bud K428	6-4x4x4	Fu MHOG	A 5	No	Wis 1237H	2F	H8.95	62.0	8x3x1/4	T	1369
4		433	3380	140	201	22500	7300	B9.75/20	DB9.75/20	Bud K428	6-4x4x4	Fu VUOG	U5	No	Wis 1237H	2F	H9.16	99.0	8x4x1/4	T	1369
5		87Q5	4875	144	144	27000	8059	B10.50/20	DB10.50/20	Bud K428	6-4x4x4	Fu MHOG	A 5	No	Wis 1737KH	2F	H9.14	64.0	8x3x1/4	T	1369
6		43L5	3850	146	201	28105	8905	B9.75/20	DB9.75/20	Bud L525	6-4x4x5	Fu VUOG	U5	No	Wis 1737KH	2F	H11.1	178.0	8x4x1/4	T	1369
7	Indiana	97L5	5815	144	144	35620	10810	B10.50/20	DB10.50/20	Bud L525	6-4x4x5	Fu VU	U5	A 3	Wis 19027	2F	H5.66	35.1	7x2x1/4	T	1369
8		85 1 1/2	885	141	186	10000	3950	B6.50/20	DB6.50/20	Her JXA	6-3x4x4	BL 124	U4	No	Tim 53200H	SF	H5.66	35.1	7x2x1/4	T	1369
9		95 2 1/2	1095	141	186	12000	4400	P32x6	DP32x6	Her JXC	6-3x4x4	BL 224	U4	No	Tim 54300H	SF	H5.85	36.2	7x2x1/4	T	1369
10		95DR	1275	141	186	15000	4650	B7.50/20	DB7.50/20	Her JXC	6-3x4x4	BL 224	U4	Op	Tim 54300H	SF	H5.85	36.2	7x2x1/4	T	1369
11		17A	2300	156	212	18000	6350	B8.25/20	DB8.25/20	Her YXC	6-4x4x4	BL 3341	U4	Op	Tim 58205H	SF	H6.83	43.0	8x3x1/4	T	1369
12		17ADR	2475	156	212	18000	6350	B8.25/20	DB8.25/20	Her YXC	6-4x4x4	BL 3341	U4	Op	Tim 58205H	SF	H6.83	43.0	8x3x1/4	T	1369
13		173	2450	170	224	18000	6600	B8.25/20	DB8.25/20	Her YXC	6-4x4x4	BL 3341	U4	Op	Tim 58205H	SF	H6.83	43.0	8x3x1/4	T	1369
14		17DR3	2675	170	224	19000	6700	B8.25/20	DB8.25/20	Her YXC	6-4x4x4	BL 334	U4	Op	Tim 58205H	SF	H6.83	43.0	8x3x1/4	T	1369
15		19DR3	3400	170	224	22000	7600	B9.00/20	DB9.00/20	Her YXC	6-4x4x4	BL 524	U4	Op	Wis 1237H	2F	H7.2	52.3	8x3x1/4	T	1369
16		43DR4	4300	170	224	25000	8000	B9.75/20	DB9.75/20	Her RNB	6-4x4x5	BL 524	U4	Op	Wis 1627KH	2F	H6.96	50.7	8x3x1/4	T	1369
17		45DR5	4800	170	224	25000	8700	B9.75/20	DB9.75/20	Her RNB	6-4x4x5	BL 534	U4	Op	Wis 1627KH	2F	H7.14	45.0	8x3x1/4	T	1369
18		47DR5-7	7000	188	224	28000	10800	B10.50/20	DB10.50/20	Cum6H Die.	6-4x4x6	BL 734	A 5	No	Wis 1904W	2F	H7.16	45.0	8x3x1/4	T	1369
19	International (8) D1	1	360	113	113	4200	2180	B5.25/18	B5.25/18	Own D	6-3x4x4	Own D	U3	No	Own D-55	SF	H4.18	12.7	5x4x1/4	T	1369
20		M2 1	850	118	118	7000	3180	B6.50/20	B6.50/20	Wau XAH	4-3x4x4	Own H-4A	U4	No	Own 713	SF	H6.16	39.5	11x2x1/4	T	1369
21		A2 1 1/2	615	136	160	8000	2945	B6.00/20	B6.00/20	Wau XAH	4-3x4x4	Own H-4A	U4	No	Own 708	SF	H6.16	39.5	5x2x1/4	T	1369
22		B2 1 1/2	615	136	136	8000	2945	B6.00/20	B6.00/20	Wau XAH	4-3x4x4	Own H-4A	U4	No	Own 704	SF	H6.16	39.5	5x2x1/4	T	1369
23		A3 1 1/2	695	136	160	10000	3572	P30x5	P32x6	Lye SAH	6-3x4x4	Own H-4A	U4	No	Own 710	SF	H5.28	33.8	7x2x1/4	T	1369
24		A3 1 1/2	970	136	160	10100	3600	B6.50/20	DB6.50/20	Lye SAH	6-3x4x4	Own H-4A	U4	No	Own 710	SF	H5.28	33.8	7x2x1/4	T	1369
25		A3 1 1/2	895	136	164	10900	4032	B6.00/20	DB6.00/20	Lye SAH	6-3x4x4	Own H-4A	U4	No	Own 710	SF	H5.28	33.8	7x2x1/4	T	1369
26		B-3 1 1/2	695	136	160	10000	3572	P30x5	P32x6	Lye SAH	6-3x4x4	Own H-4A	U4	No	Own 720	SF	H5.29	33.8	7x2x1/4	T	1369
27		B4 2	1045	145	185	12750	4055	B6.50/20	DB6.50/20	Own FAB-3	6-3x4x4	Own H-4A	U4	No	Own 750	SF	H6.5	41.6	8x3x1/4	T	1369
28		A4 2	1625	145	185	15750	5221	P32x6	DP32x6	Own FBB	6-3x4x4	Own H-5	U5	No	Own 902	SF	H6.50	47.8	7x3x1/4	T	1369
29		A5 3	2100	156	210	18750	5895	P34x7	DP34x7	Own FBB	6-3x4x4	Own H-5	U5	No	Own 10.2	SF	H7.16	64.7	8x3x1/4	T	1369
30		A6 3	2450	156	210	20850	6120	P34x7	DP34x7	Own FBB	6-3x4x4	Own H-5	U5	No	Own 1150	2F	H8.5	76.8	8x3x1/4	T	1369
31		W2 3 1/2	3900	148	200	24000	8450	S36x10	S36x10	Has 151	4-4x4x5	Own H-6	U5	No	Own 1200	2F	H7.3	85.5	8x3x1/4	T	1369
32		W3 5	4850	160	235	28000	10125	S36x10	S40x12	Has 152	4-4x4x5	Own H-6	U5	No	Own 1200	2F	H7.3	85.5	8x3x1/4	T	1369
33		A7 5-7 1/2	6200	168	225	37000	11590	B9.75/20	DB9.75/20	Own FBB	6-3x4x4	Own H-7	U5	No	Own 1301	2F	H6.37	57.2	12x3x1/4	T	1369
34	Kenworth	88 2	1480	146	200	13400	4400	P32x6	DP32x6	Her JXC	6-3x4x4	BL 234	U4	Op	Tim 54300H	SF	H5.83	37.4	8x3x1/4	T	1369
35		101B 2-2 1/2	2050	144	186	13400	4700	B7.50/20	DB7.50/20	Bud H298	6-3x4x4	BL 234	U4	Op	Tim 54300H	SF	H5.83	37.4	8x3x1/4	T	1369
36		89 2 1/2	1670	146	200	15000	4600	B7.50/20	DB7.50/20	Her JXC	6-3x4x4	BL 234	U4	Op	Tim 54300H	SF	H5.83	37.4	8x3x1/4	T	1369
37		127 2 1/2-3	2600	154	202	16300	5490	B8.25/20	DB8.25/20	Her WXC	6-4x4x4	BL 334	U4	Op	Tim 56200H	SF	H6.16	40.7	8x3x1/4	T	1369
38		127 2 1/2-3	1820	146	200	18200	5500	B7.50/20	DB7.50/20	Her JXC	6-3x4x4	BL 334	U4	Op	Tim 56200H	SF	H6.16	40.7	8x3x1/4	T	1369
39		146B 3 1/4-4	3300	156	204	20700	6890	B9.00/20	DB9.00/20	Bud K393	6-4x4x4	BL 334	U4	Op	Tim 58205H	SF	H6.83	43.0	8x3x1/4	T	1369
40		146B 3 1/4-4	3850	156	204	20700	6890	B9.00/20	DB9.00/20	Bud K393	6-4x4x4	BL 334	U4	Op	Tim 58205H	SF	H6.83	43.0	8x3x1/4	T	1369
41		146A 3 1/4-4	4330	156	204	20700	6890	B9.00/20	DB9.00/20	Has 147	6-4x5	BL 334	U4	Op	Tim 58205H	SF	H6.83	43.0	8x3x1/4	T	1369
42		146A 3 1/4-4	4675	155	221	25600	7710	B9.75/20	DB9.75/20	Her YXC2	6-4x4x4	BL 1554	A 3	Tim 75720H	2F	H7.33	105.7	7x9x3x1/4	T	1369	
43		241 5-7	5450	169	221	27800	9000	B9.75/20	DB9.75/20	Her RNB	6-4x4x5	BL 714	A 4	Tim 76720W	2F	H7.33	85.5	8x3x1/4	T	1369	
44		241A 5-7	6500	169	228	27800	9500	B9.75/20	DB9.75/20	Has 160	6-4x5x5	BL 714	A 4	Tim 76720W	2F	H7.33	85.5	8x3x1/4	T	1369	
45		241B 5-7	6150	174	228	27800	9500	B9.75/20	DB9.75/20	Bud GL-6	6-4x5x6	BL 714	A 4	Tim 76720W	2F	H7.33	85.5	8x3x1/4	T	1369	
46		241C 5-7	7200	188	225	37000	10800	B10.50/20	DB10.50/20	Own B	6-4x4x4	Own B	U4	No	Own 710	SF	H5.28	33.8	7x2x1/4	T	1369
47	Kiebler	80 1 1/2-2 1/2	1200	140	160	10000	3950	B6.50/20	DB6.50/20	Con 18E	6-3x4x4	BL 224	U4	No	Tim 53200H	BF	H5.81	34.0	5x3x1/4	T	1369
48		100 2-3 1/2	1570	170	180	12000															



Line Number	ENGINE DETAILS										FUEL SYST.	ELEC-TRICAL		FRONT AXLE		BRAKES		BODY MOUNT-ING DATA		SPRINGS		Auxiliary Type								
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	Piston Material	MAIN BEARINGS			Governor Make	Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make	Clutch Type and Make	Radiator Make	Universal Make	Mak and Model	Steering Gear Make		SERVICE		Hand Location, Type	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear
									Number and Diameter	Length													Make, Location Type, Operation	Lining Area						
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Claf F318	Ros	L41H	380	CD	81	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7	11 1/2	PC	Pe	Zen	M	AL	DR	DR	BL 61	Yo	Blo	Shu 610-103	Ros	W21M	326	CD	88 1/2	61	31 1/2	41x2 1/2	54 1/2x3		
1369	4.8	234	39.6	99-2800	L	G	B7																							

Line Number	MAKE AND MODEL	GENERAL (See Keynote)						TIRE SIZE		MAJOR UNITS							FRAME		Line Number	Piston Displacement
		Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	Engine	TRANSMISSION	REAR AXLE			Type					
												Make and Model	No. of Cylinders Bore and Stroke	Make and Model		Location and Forward Speeds Aux. Location and Speeds	Make and Model	Gear and Type		
1	Oshkosh (concl'd.)	B3S	3-4	4960	146	165	19475	8175	B10.50/20	B10.50/20	Her WXC3	6-4x4x4½	Fu 5A380	U5 A2	Own B3S	SF	H 6.10 86.2	7x3x¾	L	1.383
2		B3D	3-4	5390	146	165	19700	8400	B10.50/20	B10.50/20	Her WXB3	6-4x4x4½	Fu 5A380	U5 A2	Own B3S	SF	H 6.10 86.8	7x3x¾	L	2.383
3		C3S	4-5	5150	148	165	21850	8350	B11.25/20	B11.25/20	Her YXC2	6-4x4x4½	Fu 5A530	U5 A2	Own C3S	SF	H 6.40 90.2	7x3x¾	L	4.453
4		C3D	4-5	5795	146	165	22200	8700	B11.25/20	B11.25/20	Her YXC2	6-4x4x4½	Fu 5A530	U5 A2	Own C3D	SF	H 6.40 90.2	7x3x¾	L	5.000
5		FC	5-6	5990	146	165	22725	9225	B11.25/20	B11.25/20	Her RXB	6-4x4x4½	Fu 5A530	U5 A2	Own FC	SF	H 7.60 67.7	7x3x¾	L	6.529
6		FB	5-6	6350	146	165	25000	9500	B11.25/20	B11.25/20	Her RNC	6-4x4x4½	Fu 5A530	U5 A2	Own FB	SF	H 7.60 106.7	7x3x¾	L	7.529
7		FD	7-10	7350	146	165	30000	11500	B10.50/20	DB10.50/20	Her RNC	6-4x4x4½	Fu 5A530	U5 A2	Own FD	SF	H 7.20 101.1	10x3x¼	L	8.677
8		EBC3	7-10	8500	165	175	37000	13500	P40x10	DP40x10	Her GXX	6-5x5x6	BL 734	U4 A3	Own BG3	SF	H 6.20 101.1	10x3x¼	L	9.555
9		GD	10	9800	165	175	38000	14200	B13.50/20	B13.50/20	Her HXD	6-5x5x6	BL 734	U4 A3	Own GD	SF	H 10.90 3.8	7x3x¾	L	11.298
10	Pierce-Arrow	13S385	2-2½	2500	160	200	13000	5750	B8.25/20	DB8.25/20	Own 8	6-3x3x5	Co RU4SL	U4 No	Tim 56200	SF	R 5.28 32.6	7x3x¾	C	12.361
11		15T298	3-3½	1950	150	200	15000	5725	B8.25/20	DB8.25/20	Her WXB	6-3x3x4½	Cla 108B	U4 Op	Tim 56200	SF	R 6.16 40.2	7x3x¾	C	13.230
12		17T361	3-4	2350	150	200	17000	5725	B9.00/20	DB9.00/20	Her WXC2	6-4x4x4½	Co RU4SL	U4 Op	Tim 58200	SF	R 6.83 42.2	7x3x¾	C	14.205
13	Reo	BN	1-2	530	130	130	5500	2805	B6.50/18	B6.50/18	Own	6-3x3x5	Own	U3 O2	Own	B½	H 4.9 16.1	7x2x¾	C	15.230
14		IA (ICP)	7-1½	575	136	160	9000	3135	B6.00/20	DB6.00/20	Own	6-3x3x4½	Own	U4 O2	Own	SF	H 5.8 38.4	7x2x¾	C	16.268
15		IB	7-1½	575	136	160	9000	3135	B6.00/20	DB6.00/20	Own	6-3x3x4½	Own	U4 O2	Own	SF	H 5.8 38.4	7x2x¾	C	17.268
16		2B-2D	2-3	945	142	166	12500	3865	B6.50/20	DB6.50/20	Own	6-3x3x5	Own	U4 O2	Own	SF	H 5.8 38.4	7x2x¾	C	18.309
17		2H (2K+2)	2-4	1245	142	184	15000	4475	B7.00/20	DB7.00/20	Own	6-3x3x5	Own	U4 O2	Own	SF	H 6.6 42.9	7x4x¾	C	19.358
18		3H(3J.3K.3M+)	2-5	1795	170	205	17500	5125	B7.50/20	DB7.50/20	Own	6-3x3x5	Own	U4 O2	Own	SF	H 6.5 42.9	8x4x¾	C	20.245
19		4H.4J.4K.4M	4-6	2595	170	205	20000	6280	B9.00/20	DB9.00/20	Own	6-3x3x5	Own	U4 O2	Own	SF	H 6.14 40.5	10x3x¼	C	21.245
20	Schacht	10HA	2-3	1370	156	195	11500	4072	B7.00/20	DB7.00/20	Con 16C	6-3x3x4½	BL 35	U4 No	Tim	BF	H 5.8 31.2	6x3x¾	P	22.458
21		15HA	2-3	1735	156	195	13000	4375	B8.25/20	DB8.25/20	Con 16C	6-3x3x4½	BL 35	U4 No	Tim	BF	H 6.06 35.5	6x3x¾	P	23.458
22		20HA	2-3	2185	160	207	15000	4733	B8.25/20	DB8.25/20	Her WXC	6-4x4x4½	Fu MLU	U4 No	Tim	BF	H 6.06 35.5	6x3x¾	P	24.458
23		25HA	3-4	2695	146	213	19500	5750	B9.00/20	DB9.00/20	Her WXC	6-4x4x4½	Fu MGU	U4 No	Tim	BF	R 6.02 39.2	7x3x¾	P	25.458
24		28HA	4-5	3050	146	227	23000	6800	B9.75/20	DB9.75/20	Her WXC	6-4x4x4½	Fu MGU	U4 No	Tim	BF	R 6.83 43.7	7x3x¾	P	26.458
25		30HA	4-6	3295	146	227	23000	6800	B9.75/20	DB9.75/20	Her WXC	6-4x4x4½	Fu MGU	U4 No	Wls	2F	R 7.14 46.7	7x3x¾	P	27.458
26		35HA	5-7	3725	146	227	24000	7400	B9.75/20	DB9.75/20	Her WXC2	6-4x4x4½	Fu MGU	U4 No	Own	2F	R 8.00 52.0	8x4x¾	P	28.458
27		40H	5-7	4295	154	235	25500	7600	B9.75/20	DB9.75/20	Her YXC	6-4x4x4½	Fu 5A-53	U5 No	Own	2F	R 7.07 49.7	7x3x¾	P	29.458
28		40HB	5-7	4295	154	235	25500	7600	B9.75/20	DB9.75/20	Her YXC	6-4x4x4½	Fu 5A-53	U5 No	Own	2F	R 7.07 49.7	7x3x¾	P	30.458
29		40HB	8-11	5855	152	237	29000	9852	B10.50/24	DB10.50/24	Her RNC	6-4x4x4½	Fu 5A-53	U5 No	Wls	2F	R 7.07 49.7	7x3x¾	P	31.458
30	(T) TRDA	FB40	1½-2	3895	148	174	39000	6450	B9.75/20	DB9.75/20	Her YXC3	6-4x4x4½	Fu 5A-53	U5 No	Own	2F	R 7.8 56.8	7x3x¾	P	32.458
31		FB50	2-2½	1135	142	162	11000	3450	B6.50/20	DB6.50/20	Con 25A	6-3x3x4	WG T9	U4 No	Own	HF	H 5.66 36.2	6x2x¾	C	33.458
32		FB60	2-2½	1240	142	162	11500	3650	B7.00/20	DB7.00/20	Con 25A	6-3x3x4	WG T9	U4 No	Own	HF	H 5.66 36.2	6x2x¾	C	34.458
33		FB70	2-2½	1590	142	162	14000	4150	B7.00/20	DB7.00/20	Wau TL	6-3x3x4½	WG T9	U4 No	Own	BF	H 5.83 37.2	6x2x¾	C	35.458
34		FB80	2-2½	2635	174	204	17000	5755	B7.50/20	DB7.50/20	Wau ML	6-4x4x4	Own UC7	U5 No	Own	BF	R 7.4 52.7	10x3x¼	L	36.458
35		FB80	2-2½	3068	174	204	17000	5755	B7.50/20	DB7.50/20	Wau ML	6-4x4x4	Own UC7	U5 No	Own	BF	R 7.4 52.7	10x3x¼	L	37.458
36		FC90	3-4	3010	174	204	21000	6680	B8.25/20	DB8.25/20	Wau MK	6-4x4x4½	Own UC7	U5 Op	Own	CD	R 8.66 61.7	10x3x¼	L	38.458
37		FD90	4	4105	174	204	22000	7480	B9.00/20	DB9.00/20	Wau MK	6-4x4x4½	Own UC7	U5 Op	Own	2F	R 8.0 57.0	10x3x¼	L	39.458
38		FD97S	4-5	4355	192	222	26000	8200	P36x8	DP36x8	Wau 6SRLL	6-4x4x5½	Own UC2	U4 Op	Own	w/2F	R 7.75 51.6	12x3x¾	L	40.458
39		FD107S	5-5½	4185	192	222	26000	7760	P36x8	DP36x8	Wau 6MK	6-4x4x5½	Own UC2	U4 Op	Own	CD	R 9.3 61.2	12x3x¾	L	41.458
40		FD115	5-6	4690	192	222	27000	8750	P40x8	DP40x8	Wau 6SRLL	6-4x4x5½	Own UC2	U4 Op	Own	w/2F	R 8.20 54.6	12x3x¾	L	42.458
41		FD107	5-6	4700	192	222	27000	8200	P36x8	DP36x8	Wau 6SRLL	6-4x4x5½	Own UC2	U4 Op	Own	w/2F	R 8.20 54.6	12x3x¾	L	43.458
42		FD140	7-8	6285	192	222	35000	10050	P40x8	DP40x8	Wau 6-125	6-4x4x5½	Own UC2	U4 Op	Own	CD	R 10.0 66.6	15x3x¾	L	44.458
43		FC135	7-8	4800	192	222	35000	8900	P40x8	DP40x8	Wau SRL	6-4x4x5½	Own UC2	U4 Op	Own	CD	R 9.3 62.2	15x3x¾	L	45.458
44		FC148	8-8½	5245	200	230	36000	9350	P40x8	DP40x8	Wau 6-125	6-4x4x5½	Own UC2	U4 Op	Own	CD	R 8.3 55.2	15x3x¾	L	46.458
45		FC148	8-8½	6180	200	230	37000	10100	P40x8	DP40x8	Wau AB	6-4x4x5½	Own UC8	U4 Op	Own	CD	R 9.4 58.9	15x3x¾	L	47.458
46		FW170	9-10	6980	200	230	35000	10550	P40x8	DP44x10	Wau AB	6-4x4x5½	Own UC8	U4 Op	Own	w/2F	R 10.0 62.7	15x3x¾	L	48.458
47		FC170	9-10	6980	200	230	35000	10550	P40x8	DP44x10	Wau AB	6-4x4x5½	Own UC8	U4 Op	Own	w/2F	R 10.0 62.7	15x3x¾	L	49.458
48		FC170	9-10	6980	200	230	35000	10550	P40x8	DP44x10	Wau RB	6-5x5x4	Own UC8	U4 Op	Own	CD	R 9.4 58.9	15x3x¾	L	50.458
49		FD195	10-12½	8925	220	242	39000	10100	B10.50/20	DB10.50/20	Cur H Die	6-3x3x4½	BL 734	U4 No	Cla 1910W	SF	H 5.4 35.1	16x2x¾	T	51.458
50	Stewart	41X	3	670	124	124	8500	2875	B6.50/18	B6.50/18	Lyc	6-3x3x4½	WG	U4 No	Cla	SF	H 5.4 35.1	16x2x¾	T	52.458
51		41X1S	1	680	134	145	8500	2925	B6.50/18	B6.50/18	Lyc	6-3x3x4½	WG	U4 No	Cla	SF	H 5.4 35.1	16x2x¾	T	53.458
52		44X	1½	695	134	176	8500	3250	B6.50/20	B6.50/20	Lyc	6-3x3x4½	WG	U4 No	Cla	SF	H 5.61 35.8	7x2x¾	T	54.458
53		42X	1½	795	145	176	9000	3525	B6.50/20	B6.50/20	Lyc	6-3x3x4½	WG	U4 No	Cla	SF	H 5.6 35.8	7x2x¾	T	55.458
54		43X	2	995	145	176	10800	4005	B6.50/20	DB6.50/20	Lyc	6-3x3x4½	WG	U4 No	Cla	SF	H 5.6 35.8	7x2x¾	T	56.458
55		45X	2	1295	145	176	12800	4550	B6.50/20	DB6.50/20	Lyc	6-3x3x4½	WG	U4 No	Cla	SF	H 5.6 35.8	7x2x¾	T	57.458
56		28X3	2½	1690	155	220	15000	5190	DB7.00/20	DB7.00/20	Lyc	6-3x3x4½	WG	U4 No	Cla	SF	R 6.37 44.4	9x2x¾	T	58.458
57		28X3	2½	1990	165	220	18000	5460	B7.00/20	DB7.00/20	Lyc	6-3x3x4½	BL	U5 No	Cla	SF	R 6.37 44.4	9x2x¾	T	59.458
58		58-8	3	2190	170	226	18000	6025	B7.50/20	DB7.50/20	Lyc	8-3x3x4½	Fu	U5 No	Cla	SF	R 7.1 47.0	9x2x¾	T	60.458
59		18X	3½	2690	165	220	20000	6600	B7.50/20	DB7.50/20	Lyc	8-3x3x5	Fu	U5 No	Tim	WF	R 7.25 47.5	9x2x¾	T	61.458
60		48-8	3½	2990	170	221	20000	6750	B8.25/20	DB8.25/20	Lyc	8-3x3x4½	BL	U5 No	Cla	WF	R 7.1 50.1	9x2x¾	T	62.458
61		19X	3½	3690	165	235	20000	7110	B9.00/20	DB9.00/20	Lyc	8-3x3x5	Fu	U5 A3	Tim	WF	R 7.25 127.9	9x2x¾	T	63.458
62		38-6	3½-5	3990	170	241	23000	7600	B9.00/20	DB9.00/20	Lyc	6-4x3x5½	BL	U4 A3	Tim	WF	R 7.25 147.7	9x2x¾	T	64.458
63		38-6	3½-5	3990	170	241	23000	7600	B9.00/20	DB9.00/20	Lyc	6-4x3x5½	BL	U4 A3	Tim	WF	R 7.25 147.7	9x2x¾	T	65.458
64		31																		



Line Number	ENGINE DETAILS										FUEL SYST.	ELEC. TRICAL	FRONT AXLE	BRAKES		BODY MOUNTING DATA			SPRINGS		Auxiliary Type															
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	MAIN BEARINGS			Valve Arrangement	Camshaft Drive				Piston Material	Number and Diameter	Length	Oiling System Type	Governor Make	Carburetors Make	Fuel Feed		Ignition System Make	Generator, Starter Make	Clutch Type and Make	Radiator Make	Universal Make	Make and Model	Steering Gear Make	SERVICE		Hand Location, Type	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear
						Make	Location	Type																					Operation	Lining Area						
1383	4.7	26.5	43.3	91-2000	L	G	C	7-2	13	14	PC	Ha	Zen	M	LN	RB	P.BB	Ch	Bl	Own B38	Ros	B41MV	518	G	TX	112 1/4	82	34	44x2 1/2	50x3						
1384	4.7	26.5	43.3	91-2000	L	G	C	7-3	15	15	PC	Ha	Zen	M	LN	RB	P.BB	Ch	Bl	Own C38	Ros	B41MV	518	G	TX	112 1/4	82	34	44x2 1/2	50x3						
4453	4.7	297	48.6	95-2000	L	G	C	7-3	15	15	PC	Ha	Zen	M	LN	RB	P.BB	Ch	Bl	Own C3D	Ros	B41MV	518	G	TX	112 1/4	82	34	44x2 1/2	50x3						
5500	4.9	330	48.6	106-2000	L	G	C	7-3	12 1/2	13	PC	Ha	Zen	M	LN	RB	P.BB	Ch	Bl	Own FC	Ros	B41MV	666	G	TX	112 1/4	82	34	44x2 1/2	50x3						
6529	4.9	350	51.3	112-2000	L	G	C	7-3	12	13	PC	Ha	Zen	M	LN	RB	P.BB	Ch	Bl	Own FB	Ros	B41MV	666	G	TX	112 1/4	82	34	44x2 1/2	50x3						
7529	4.9	350	51.3	112-2000	L	G	C	7-3	12	13	PC	Ha	Zen	M	LN	RB	P.BB	Ch	Bl	Own FB	Ros	B41MV	666	G	TX	112 1/4	82	34	44x2 1/2	50x3						
8677	4.5	440	60.0	142-2000	L	G	C	7-3	17	17	PC	Ha	Zen	M	LN	RB	P.BB	Ch	Bl	Own BG3	Ros	B41MV	666	G	TX	112 1/4	85	36	48x3 1/2	52x4						
8555	4.5	555	72.8	180-2000	L	G	C	7-3	17	17	PC	Ha	Zen	M	LN	RB	P.BB	Ch	Bl	Own GD	Ros	B41MV	666	G	TX	112 1/4	85	36	48x3 1/2	52x4						
10385	5.0	274	39.7	125-2800	L	G	C	7-3	14 1/4	14 1/4	CC	Ha	Zen	M	DR	DR	P.L	Lo	Cle	Tim 14706	Ha	B41M	399	D	TD	116 1/4	62 1/4	34	38x2 1/2	56x3						
11298	4.7	190	33.7	70-2600	L	G	C	7-2	13 1/4	13 1/4	CC	Ha	Zen	M	DR	DR	P.L	Lo	Cle	Tim 14706	Ha	B41M	399	D	TD	113 1/4	59 1/4	34	38x2 1/2	56x3						
12361	4.7	230	40.3	77-2400	L	G	C	7-2	13 1/4	13 1/4	CC	Ha	Zen	M	DR	DR	P.L	Lo	Cle	Tim 14706	Ha	B41M	399	D	TD	143 1/4	89 1/4	34	38x2 1/2	56x3						
13230	5.3	152	23.4	68-2800	L	G	C	7-2	12	12	CC	No	Str	M	DR	DR	P.Ow	Ow	Cle	Own	Ros	L49H	280	P	TX	102	60	34	38 1/2	57x2 1/2						
13230	5.3	152	23.4	68-2800	L	G	C	7-2	12	12	CC	No	Str	M	DR	DR	P.Ow	Ow	Cle	Own	Ros	L49H	280	P	TX	102	60	34	40x2 1/2	50x3 1/2						
16230	5.3	152	23.4	68-2800	L	G	C	7-2	12	12	CC	No	Str	M	DR	DR	P.Ow	Ow	Cle	Own	Ros	L49H	280	P	TX	102	60	34	40x2 1/2	50x3 1/2						
16268	4.9	175	27.3	75-2800	L	G	C	7-2	12	12	CC	No	Str	M	DR	DR	P.L	Mc	Cle	Own	Ros	L41H	289	A	TX	105	60	34	40x2 1/2	52x2 1/2						
17688	4.9	175	27.3	75-2800	L	G	C	7-2	12	12	CC	No	Str	M	DR	DR	P.L	Mc	Cle	Own	Ros	L41H	289	A	TX	116	60	34	40x2 1/2	52x2 1/2						
18309	4.9	200	31.5	85-2800	L	G	C	7-2	12	12	CC	No	Str	M	DR	DR	P.L	Mc	Cle	Own	Ros	L41H	344	A	FD	124	68	34	44x3	54x3						
19358	4.9	230	36.1	110-2800	L	G	C	7-2	12	12	CC	No	Str	M	DR	DR	P.L	Mc	Cle	Own	Ros	L41H	390	A	FD	143	83	34	44x3	56x3 1/2						
20485	5.1	150	27.3	65-2600	L	G	C	7-2	10 1/2	10 1/2	FP	No	Str	M	DR	DR	D.B	Yo	Spl	Tim	Ros	L41H	380	G	TX	129 1/4	Opt	31 1/2	40x2 1/2	50x3						
21485	5.1	150	27.3	65-2600	L	G	C	7-2	10 1/2	10 1/2	FP	No	Str	M	DR	DR	D.B	Yo	Spl	Tim	Ros	L41H	380	G	TX	129 1/4	Opt	31 1/2	40x2 1/2	50x3						
22339	4.7	225	38.4	73-2200	L	G	C	7-2	13 1/4	13 1/4	PC	Mo	Str	M	AL	AL	D.BB	Yo	Spl	Tim	Ros	L41HV	452	G	TX	129 1/4	Opt	31 1/2	40x2 1/2	50x3						
23349	4.7	225	38.4	73-2200	L	G	C	7-2	13 1/4	13 1/4	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Spl	Tim	Ros	L41HV	578	G	TX	106	Opt	31 1/2	40x2 1/2	50x3						
24339	4.7	225	38.4	73-2200	L	G	C	7-2	13 1/4	13 1/4	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Spl	Tim	Ros	L41HV	578	G	TX	106	Opt	31 1/2	40x2 1/2	50x3						
25339	4.7	225	38.4	73-2200	L	G	C	7-2	13 1/4	13 1/4	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Spl	Tim	Ros	L41HV	578	G	TX	106	Opt	31 1/2	40x2 1/2	50x3						
26360	4.7	238	40.3	80-2200	L	G	C	7-2	13 1/4	13 1/4	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Spl	Shu	Ros	L41HV	658	G	TX	106	Opt	31 1/2	40x2 1/2	50x3						
27428	4.7	280	45.9	93-2200	L	G	C	7-2	13 1/4	13 1/4	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Spl	Shu	Ros	L41HV	768	H	TX	106	Opt	31 1/2	40x2 1/2	50x3						
28428	4.7	280	45.9	93-2200	L	G	C	7-2	13 1/4	13 1/4	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Spl	Shu	Ros	L41HV	768	H	TX	106	Opt	31 1/2	40x2 1/2	50x3						
29529	4.9	355	51.2	115-2000	L	G	C	7-3	15	15	PC	Mo	Str	M	AL	AL	D.Fu	Yo	Spl	Shu	Own	W41A	847	G	TX	118	Opt	31 1/2	42x3	60x3 1/2						
30478	4.4	318	51.2	2103-2200	L	G	C	7-3	15	15	CC	No	Str	M	AL	AL	D.Fu	Yo	Spl	Tim	Ros	L41HV	893	H	TX	92	Opt	31 1/2	40x2 1/2	50x3						
31214	5.0	137	28.0	72-3300	L	G	C	4-2 1/2	6 1/4	6 1/4	CC	No	Zen	M	DR	DR	P.L	Pe	Spl	Tim 30000H	Ros	L41H	269	P	TX	96	57	34	38x2 1/2	50x2 1/2						
32214	5.0	137	28.0	72-3300	L	G	C	4-2 1/2	6 1/4	6 1/4	CC	No	Zen	M	DR	DR	P.L	Pe	Spl	Tim 30000H	Ros	L41H	269	P	TX	96	57	34	38x2 1/2	50x2 1/2						
33255	4.0	175	28.0	68-2600	L	G	C	4-2 1/2	7 1/4	7 1/4	CC	No	Zen	M	DR	DR	P.L	Pe	Spl	Tim 31000H	Ros	L41H	282	P	TX	96	57	34	38x2 1/2	50x2 1/2						
34358	4.4	230	38.4	80-2500	L	G	C	7-2	12 1/2	12 1/2	CC	Ha	Zen	M	DR	DR	D.Ow	Mo	Spl	Tim 33000H	Ros	L41HV	396	A	CX	144	91	34	42x2 1/2	54x3						
35358	4.4	230	38.4	80-2500	L	G	C	7-2	12 1/2	12 1/2	CC	Ha	Zen	M	DR	DR	D.Ow	Mo	Spl	Tim 33000H	Ros	L41HV	396	A	CX	144	91	34	42x2 1/2	54x3						
36381	4.4	240	40.8	85-2500	L	G	C	7-2	12 1/2	12 1/2	CC	Ha	Zen	M	DR	DR	D.Ow	Mo	Spl	Tim 33000H	Ros	L41HV	396	A	CX	144	91	34	42x2 1/2	54x3						
37381	4.4	240	40.8	85-2500	L	G	C	7-2	12 1/2	12 1/2	CC	Ha	Zen	M	DR	DR	D.Ow	Mo	Spl	Tim 33000H	Ros	L41HV	396	A	CX	144	91	34	42x2 1/2	54x3						
38381	4.4	240	40.8	85-2500	L	G	C	7-2	12 1/2	12 1/2	CC	Ha	Zen	M	DR	DR	D.Ow	Mo	Spl	Tim 33000H	Ros	L41HV	396	A	CX	144	91	34	42x2 1/2	54x3						
39462	4.5																																			



Line Number	MAKE AND MODEL	Wheels Driven—6—Wheeled	Tonnage Rating	GENERAL (See Keynote)			TIRE SIZE		MAJOR UNITS				FRAME									
				Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	ENGINE		TRANSMISSION		REAR AXLE		Side Rail Dimensions	Type				
											Make and Model	No. of Cylinders Bore and Stroke	Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model			Gear and Type	Drive and Torque	In High	In Low
Six-Wheelers																				Line Number		
1	B'kway 180SBT	2C	5-7 1/2	4200	212	224	28000	9795	B8.25/20	BD8.25/20	Con 32B	6-4 1/2 x 4 1/2	Fu 5A38	U5	Op	Tim SBT-251	SF	T 6.14	48.5	8 1/2 x 3 1/2	B	1360
2	Corbett 208W6	4R	3-5	5720	Op	Op		9000	B7.50/20	DB7.50/20	Con 20R	6-4 1/2 x 4 1/2	BL 615	U5	No	TimSW150W	w/2F	R Opt	Opt	8 1/2 x 3 1/2	T	3281
3	28SW6	4R	5-7 1/2	6380	Op	Op		10000	P34x7	DP34x7	Con 21R	6-4 1/2 x 4 1/2	BL 607	A7	No	TimSW250W	w/2F	R Opt	Opt	8 1/2 x 3 1/2	T	3428
4	36SW6	4R	7 1/2-10	8800	Op	Op		11500	P36x8	DP36x8	Con 21R	6-4 1/2 x 4 1/2	BL 607	A7	No	TimSW310W	w/2F	R Opt	Opt	10 1/2 x 3 1/2	T	5611
5	40SW6	4R	10-15	11000	Op	Op		13000	P38x9	DP38x9	Con 16H	6-4 1/2 x 5 1/2	BL 707	A7	No	TimSW420W	w/2F	R Opt	Opt	10 1/2 x 3 1/2	T	6229
6	Day-Elder 285	4R	8	5295	205	234	28500	12000	B8.25/20	DB8.25/20	Her RXC	6-4 1/2 x 5 1/2	BL 534	U4	No	TimSWD210H	WF	R 7.50	47.6	10 1/2 x 3 1/2	C	8529
7	345	4R	10	6395	205	234	34500	12500	B9.00/20	DB9.00/20	Her RXC	6-4 1/2 x 5 1/2	BL 534	U4	No	TimSWD310W	WF	R 8.50	54.0	10 1/2 x 3 1/2	C	9428
8	402	4R	12	7495	205	234	40200	14200	B9.75/20	DB9.75/20	Her RXC	6-4 1/2 x 5 1/2	BL 725	U5	No	TimSWD410W	WF	R 9.00	63.6	10 1/2 x 3 1/2	C	10501
9	Diamond T 801	4R	4	4140	189	219	21000	8500	P36x8	P36x8	Her YXC	6-4 1/2 x 4 1/2	BL 55	A7	No	Own	WF	H Opt	Opt	6 1/2 x 3 1/2	P	11529
10	1201	4R	6	5600	180	210	28000	11000	P34x7	DP34x7	Her RXB	6-4 1/2 x 5 1/2	BL 60	A7	No	Tim SW200	WF	H Opt	Opt	9 1/2 x 3 1/2	P	12707
11	1602	4R	8	6400	175	210	36000	11700	P36x8	DP36x8	Her RXC	6-4 1/2 x 5 1/2	BL 60	A7	No	Tim SW310	WF	R Opt	Opt	9 1/2 x 3 1/2	P	13707
12	1603	4R	8	7500	184	224	36000	12500	P36x8	DP36x8	Wau 6RB	6-5 1/2 x 5 1/2	BL 70	A7	No	Tim SW310	WF	R Opt	Opt	9 1/2 x 3 1/2	P	14309
13	Dodge G850	2C	1 1/2-4	935	153	153	12000	3650	B6.00/20	P32x6	Own	6-3 1/2 x 4 1/2	Own	U4	No	Own	SF	H 5.55	36.1	7 1/2 x 2 1/2	H	15422
14	Bros F875	2C	3-9	3995	221	221	30000	8350	B9.00/20	DB9.00/20	Own	6-3 1/2 x 5 1/2	Own	U4	No	Own	SF	H 7.13	48.2	10 1/2 x 3 1/2	C	16677
15	Fageol 8-46	4R	8	7800	195	220	40500	13200	B9.75/20	DB9.75/20	Wau 6-125	6-4 1/2 x 5 1/2	BL 714	U4	A 3	Tim Own	WF	R 5.19	127.8	8 1/2 x 4 1/2	C	17215
16	10-46	4R	10	8800	232	232	56000	14700	B9.75/20	DB9.75/20	Wau RB	6-5 1/2 x 4 1/2	BL 714	U4	A 3	Tim Own	WF	R 5.19	127.8	8 1/2 x 4 1/2	C	18215
17	Federal E2SWL	2R	3	1150	145	187	13750	3975	B6.00/20	P32x6	Con 17E	6-3 1/2 x 4 1/2	WG T9	U4	No	Cla B374	SF	H 6.38	40.8	8 1/2 x 4 1/2	C	19263
18	E2DL	4R	3	1450	145	187	14000	4310	B6.00/20	P32x6	Con 17E	6-3 1/2 x 4 1/2	WG T9	U4	No	Cla B412	SF	H 6.38	40.8	8 1/2 x 4 1/2	T	20263
19	16	2R	3	1320	172	198	15000	4300	B6.00/20	P32x6	Her JXB	6-3 1/2 x 4 1/2	WG T9	U4	No	Cla B412	SF	H 6.38	40.8	8 1/2 x 4 1/2	T	21381
20	17	4R	3	1570	172	198	15000	4700	B6.00/20	P32x6	Her JXB	6-3 1/2 x 4 1/2	WG T9	U4	No	Cla B412	SF	H 6.38	40.8	8 1/2 x 4 1/2	T	22381
21	36	2R	4 1/2	2795	192	218	24000	7700	B7.50/20	DB7.50/20	Wau 6MK	6-4 1/2 x 4 1/2	Cla R900	U5	No	Cla B642	SF	H 7.16	58.6	10 1/2 x 3 1/2	N	23381
22	37	4R	4 1/2	3175	192	218	24000	8100	B7.50/20	DB7.50/20	Wau 6MK	6-4 1/2 x 4 1/2	Cla R900	U5	No	Cla B642	SF	H 7.16	58.6	10 1/2 x 3 1/2	N	24381
23	T108W	2R	7	3895	188	224	28000	9600	P34x7	DP34x7	Con 20R	6-4 1/2 x 4 1/2	Cla B710	A5	No	Tim 58200H	BF	H 7.8	50.6	6 7/8 x 3 1/2	P	24677
24	FWD MX6	6	10-15	1225	200	Op	48000	17800	B13.50/20	DB13.50/20	Wau RB	6-5 1/2 x 5 1/2	BL 714	U4	A 2	Wis 131TW	2F	H 8.36	173	10 1/2 x 3 1/2	C	25517
25	X6	4F	6-10	7385	170	Op	36000	12000	B9.75/20	DB9.75/20	Wau SRK	6-4 1/2 x 5 1/2	Own U	A5	Op	Own X	BF	H 7.35	73	7 1/2 x 3 1/2	C	26517
26	Gen. Mo. T95	4R	9-11	7695	189	224	40000	13250	P34x7	DP34x7	Own 525	6-4 1/2 x 5 1/2	Own	U4	Op	Own	WF	R 8.50	53.8	9 1/2 x 4 1/2	C	27616
27	T130	4R	12-15	9490	189	224	50000	14545	B9.75/20	DB9.75/20	Own 525	6-4 1/2 x 5 1/2	Own	U4	A 3	Own	WF	R 9.50	119	9 1/2 x 4 1/2	L	28616
28	Hendrick n. 21D	4R	2-6	3500	Op	Op	21000	6800	B7.50/20	DB7.50/20	Wau 6-90	6-3 1/2 x 4 1/2	Fu 5A38	U5	No	Own 985	SF	H Opt	Opt	8 1/2 x 3 1/2	C	29358
29	25D	4R	3-8	3900	Op	Op	25000	8000	B8.25/20	DB8.25/20	Wau 6-110	6-4 1/2 x 4 1/2	Fu 5A38	U5	No	Own 985	SF	H Opt	Opt	8 1/2 x 3 1/2	C	30358
30	32D	4R	4-9	4900	Op	Op	32000	10500	B9.00/20	DB9.00/20	Wau 6-110	6-4 1/2 x 4 1/2	Fu 5A38	U5	No	Own 2513X	SF	R Opt	Opt	8 1/2 x 3 1/2	C	31462
31	38D	4R	5-12	6000	Op	Op	38000	11200	B9.75/20	DB9.75/20	Wau 6-125	6-4 1/2 x 5 1/2	Fu 5A53	U5	No	Own 2513X	SF	R Opt	Opt	8 1/2 x 3 1/2	C	32462
32	40D	4R	12	8000	Op	Op	40000	13200	B9.75/20	DB9.75/20	Wau 6-125	6-4 1/2 x 5 1/2	Fu 5A53	U5	No	Eat 44000	2F	R Opt	Opt	8 1/2 x 3 1/2	C	33462
33	44D	4R	12	9000	Op	Op	44000	14000	B9.75/20	DB9.75/20	Wau 6RB	6-5 1/2 x 5 1/2	BL 70-7	A7	No	Eat 44000	2F	R Opt	Opt	8 1/2 x 3 1/2	C	34462
34	Hug 99	4R	10	10300	148	148	58500	15100	S36x8	S40x16	Bud GF6	6-4 1/2 x 8 1/2	BL 714-703	U4	A 3	Wis SD410W	2F	R 10.3	139	9 1/2 x 4 1/2	H	35462
35	Ind. 95SBT-151	2C	3	1875	168	186	20000	6125	P32x6	DP32x6	Her JXC	6-3 1/2 x 4 1/2	BL 224	U4	No	Tim SBT151	SF	T 7.4	45.8	7 1/2 x 2 1/2	T	36462
36	95SW 75	4R	3	1900	168	186	20000	5800	P32x6	DP32x6	Her JXC	6-3 1/2 x 4 1/2	BL 224	U4	No	Tim SW75	WF	T 7.4	45.8	7 1/2 x 2 1/2	T	37462
37	17ASW151	4R	3	3450	188	212	24000	7500	B8.25/20	DB8.25/20	Her WXC	6-4 1/2 x 4 1/2	BL 3341	U4	Op	Tim SW151	WF	T 6.4	40.3	8 1/2 x 3 1/2	T	38462
38	17SBT251	2C	4	3500	188	224	28000	8850	P34x7	DP34x7	Her YXC	6-4 1/2 x 4 1/2	BL 524	U4	Op	Tim SBT251	SF	T 6.1	37.8	8 1/2 x 3 1/2	TL	39462
39	17SW251	4R	4	3900	188	224	28000	9500	P34x7	DP34x7	Her YXC	6-4 1/2 x 4 1/2	BL 524	U4	Op	Tim SW251	WF	T 6.2	38.1	8 1/2 x 3 1/2	TL	40462
40	12X4	4R	1 1/2	2650	141	141	10000	4350	B6.50/20	DB6.50/20	Her JXC	6-3 1/2 x 4 1/2	BL	U4	A 2	Wis	SF	H 5.14	54.0	7 1/2 x 2 1/2	T	41462
41	14X4	4R	2 1/2	3950	141	141	14000	5900	B7.50/20	DB7.50/20	Her WXB	6-3 1/2 x 4 1/2	BL	U4	A 2	Wis	SF	H 5.40	50.0	7 1/2 x 2 1/2	T	42462
42	16X4	4R	3	4850	156	156	16000	7500	B8.25/20	DB8.25/20	Her WXC2	6-4 1/2 x 4 1/2	BL	U4	U2	Wis	2F	H 6.06	89.0	8 1/2 x 3 1/2	C	43462
43	16X6	6 1/2	3	5650	170	170	20000	8000	B7.00/20	DB7.00/20	Her RXB	6-4 1/2 x 5 1/2	BL	U4	U2	Wis	2F	H 4.66	89.0	8 1/2 x 3 1/2	C	44462
44	18X4	4R	3 1/2	5850	160	160	21000	9000	B9.00/20	DB9.00/20	Her YXC	6-4 1/2 x 4 1/2	BL	U4	A 2	Wis	2F	H 7.83	110.0	8 1/2 x 3 1/2	C	45462
45	18X6	6 1/2	3 1/2	6650	170	170	28000	10500	B8.25/20	DB8.25/20	Her RXC	6-4 1/2 x 5 1/2	BL	U4	A 2	Wis	2F	H 7.83	110.0	8 1/2 x 3 1/2	C	46462
46	20X4	4R	4 1/2	7200	188	188	24000	10600	B9.75/20	DB9.75/20	Her HXB	6-5 1/2 x 6	BL	U4	A 2	Wis	2F	H 8.00	128	9 1/2 x 3 1/2	C	47462

Line Number	ENGINE DETAILS										FUEL SYST.	ELEC-TRICAL	FRONT AXLE	BRAKES		BODY MOUNT-ING DATA		SPRINGS												
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	Piston Material	MAIN BEARINGS	Governor Make				Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make	Clutch Type and Make	Radiator Make	Universal Make	Steering Gear Make	SERVICE		Hand Location, Type	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear	Auxiliary Type
																						Lining Area	Drum Material							
1360	4.5	240	40.8	90-2500	L	G	N	7-2 1/2	13	CC	KP	Zen	M	AL	DR	P. BL	GO	Spl	Shu 15692B12	Ros	L61HV	708	G	CD	210	125	34 1/4	40x2 1/4	52x4	N
3281	4.6	276	40.8	106-2600	L	G	N	7-2 1/2	13	FP	No	Zen	M	DR	DR	P. BL	Pe	Spl	Ros	W61A	459	a	TD	Opt	Opt	34	46x3	56x4	N	
3428	4.6	276	45.9	118-2600	H	H	H	7-2 1/2	13	FP	No	Zen	M	DR	DR	P. BL	Pe	Spl	Ros	W61A	525	a	TD	Opt	Opt	34	46x3	56x4	N	
4428	4.6	276	45.9	118-2600	L	G	G	7-2 1/2	13 1/2	FP	No	Zen	M	DR	DR	P. BL	Pe	Spl	Ros	W61A	536	a	TD	Opt	Opt	34	46x3	60x4	N	
6111	4.5	384	54.1	127-2300	H	L	G	7-3	13 1/2	FP	No	Zen	M	DR	DR	P. BL	Pe	Spl	Ros	W61A	720	a	TD	Opt	Opt	34	46x3	60x4	N	
6519	4.4	347	51.3	114-2200	L	G	G	7-3	12 1/2	PC	No	Zen	M	DR	DR	P. BL	Pe	Spl	Ros	L61H	842	a	DF	213	120	33	46x3	64x4	N	
7529	4.4	347	51.3	114-2200	L	G	G	7-3	12 1/2	PC	No	Zen	M	DR	DR	P. BL	Pe	Spl	Ros	W61A	1014	a	DF	213	120	33	46x3	64x5	N	
8299	4.4	347	51.3	114-2200	L	G	G	7-3	12 1/2	PC	No	Zen	M	DR	DR	P. BL	Pe	Spl	Ros	W61A	1014	a	DF	213	120	33	46x3	64x5	N	
9428	4.4	280	45.9	93-2200	L	L	L	7-3	14	PC	Ha	Zen	M	AL	AL	D. Co	GO	Spl	Shu 5582B	Ros	L61HV	571	a	TD	162	103	34	45 1/2 x 2 1/2	58x4	N
10501	4.4	330	45.9	111-2200	L	G	G	7-3	12 1/2	PC	Ha	Zen	M	AL	AL	D. Co	GO	Spl	Ros	W61A	238	a	TD	162	100 1/2	37	46x3	50x4	N	
11529	4.4	350	51.3	114-2200	L	G	G	7-3	12 1/2	PC	Ha	Zen	M	AL	AL	D. Co	GO	Spl	Ros	W61A	238	a	TD	162	100 1/2	37	46x3	50x4	N	
12707	4.4	455	60.0	148-2000	L	G	G	7-3 1/2	17	PC	Ha	Zen	M	LN	LN	D. BL	GO	Spl	Ros	W61A	238	a	TD	141	93	37	46x3	50x4	N	
13211	5.3	130	25.3	60-3100	L	G	G	8 1/2	6 1/2	CC	No	Car	M	DR	DR	P. BB	Fe	Own	Own	O61HV	273	a	TX	117 1/2	50 1/2	34 1/2	36x1 1/2	43 1/2 x 3	N	
14309	4.7	198	21.0	96-3000	L	G	G	7-2 1/2	11 1/2	CC	Ha	Det	M	DR	DR	P. BB	Fe	Own	Own	O61HV	657	a	CD	218 1/2	114 1/2	34 1/2	42x3	56 1/2 x 4	N	
15462	5.2	324	46.0	125-2600	L	G	G	7-3	13 1/2	PC	Ha	Zen	M	My	DR	P. BL	Pe	Spl	Tim 36020N	Ros	W61A	630	H	FD	168	114 1/2	33 1/2	41x3	46 1/2 x 3 1/2	N
16774	4.4	460	60.0	125-1800	L	L	G	7-3 1/2	11 1/2	PC	No	Zen	M	DR	DR	P. BL	Lo	Cle	Tim 27050	Ros	W61A	630	H	FD	214	144 1/2	33 1/2	42 1/2 x 3	49 1/2 x 4	N
17155	5.1	137	27.3	60-2600	L	G	G	7-2 1/2	9 1/2	CC	Mo	Zen	M	DR	DR	P. BB	Lo	Cle	Cla F212	Ge	L61H	312	a	TX	118	63 1/2	34	38x2 1/2	40 1/2 x 2 1/2	N
18215	5.1	137	27.3	60-2600	L	G	G	7-2 1/2	9 1/2	CC	Mo	Zen	M	DR	DR	P. BB	Lo	Cle	Cla F212	Ge	L61H	312	a	TX	118	63 1/2	34	38x2 1/2	40 1/2 x 2 1/2	N
20263	5.4	164	31.5	67-2600	L	G	G	7-2 1/2	10 1/2	CC	Mo	Car	M	DR	DR	P. BB	Lo	Spl	Cla F212	Ge	L61H	312	a	TX	143	86 1/2	34	38x2 1/2	40 1/2 x 2 1/2	N
21381	4.8	240	40.8	85-2400	L	G	G	7-2 1/2	12 1/2	FP	Wa	Zen	M	DR	DR	P. BB	Lo	Spl	Cla F212	Ge	L61H	312	a	TX	143	86 1/2	34	38x2 1/2	40 1/2 x 2 1/2	N
22381	4.8	240	40.8	85-2400	L	G	G	7-2 1/2	12 1/2	FP	Wa	Zen	M	DR	DR	P. BB	Lo	Spl	Cla F320	Ros	L61HV	495	a	FD	168	99 1/2	34	42x2 1/2	44x3	N
23381	4.4	237	40.8	85-2200	H	C	C	7-2 1/2	13 1/2	CC	KP	Zen	M	DR	DR	P. BB	Lo	Spl	Own 7738	Ros	L61HV	623	a	TD	182	102	34	42x2 1/2	50x3 1/2	N
24677	4.4	260	60.0	125-2000	L	L	G	7-3	11 1/2	PC	Wa	Zen	M	DR	DR	P. BL	Lo	Spl	Shu 131F	Ros	B61MV	504	G	TD	220	145	34	48x3 1/2	40x5	N
25174	4.5	330	51.3	110-2400	L	G	G	7-3	13 1/2	PC	Ha	Zen	M	DR	DR	P. BL	Yo	Spl	Own M	Ros	B61A	864	G	TD	161	100	34	42x3 1/2	44x3	N
26525	4.5	380	48.6	128-2100	H	C	A	7-2 1/2	14 1/2	FP	Ha	Str	M	DR	DR	dp. Ow	Lo	Spl	Own	Jac	B61A	817	a	TX	161	100	34	50x3 1/2	45x4	N
27616	4.5	450	57.0	149-3100	L	G	A	7-2 1/2	14 1/2	FP	Ha	Str	M	DR	DR	dp. Ow	Lo	Spl	Own	Jac	B61A	965	a	TX	161	100	34	50x3 1/2	45x4	N
28554	4.6	182	27.3	90-3200	L	G	G	7-2 1/2	6 1/2	CC	Wa	Zen	M	DR	DR	D. Fu	Ch	MM	Tim 33000H	Ros	L61HV	295	p	TD	Opt	Opt	34	40 1/2 x 3 1/2	31x3	N
29358	4.6	254	38.4	110-2800	L	G	G	7-2 1/2	12 1/2	PC	Wa	Zen	M	DR	DR	D. Fu	Ch	MM	Tim 33000H	Ros	L61HV	295	p	TD	Opt	Opt	34	40 1/2 x 3 1/2	31x3	N
30358	4.6	254	38.4	110-2800	L	G	G	7-2 1/2	12 1/2	PC	Wa	Zen	M	DR	DR	D. Fu	Ch	MM	Tim 33000H	Ros	L61HV	504	G	TD	Opt	Opt	34	40 1/2 x 3 1/2	35 1/2 x 4	N
31462	4.6	254	38.4	110-2800	L	G	G	7-2 1/2	12 1/2	PC	Wa	Zen	M	DR	DR	D. Fu	Ch	MM	Tim 33000H	Ros	L61HV	504	G	TD	Opt	Opt	34	40 1/2 x 3 1/2	35 1/2 x 4	N
32462	4.6	254	38.4	110-2800	L	G	G	7-2 1/2	12 1/2	PC	Wa	Zen	M	DR	DR	D. Fu	Ch	MM	Tim 33000H	Ros	L61HV	504	G	TD	Opt	Opt	34	40 1/2 x 3 1/2	35 1/2 x 4	N
33677	4.6	254	38.4	110-2800	L	G	G	7-2 1/2	12 1/2	PC	Wa	Zen	M	DR	DR	D. Fu	Ch	MM	Tim 33000H	Ros	L61HV	504	G	TD	Opt	Opt	34	40 1/2 x 3 1/2	35 1/2 x 4	N
34638	4.3	110	51.3	126-1850	L	G	C	4-3	10 1/2	CC	Pe	Zen	M	RB	No	dp. BL	Yo	Blo	Shu 715-11	Ros	W61A	720	G	TD	Opt	Opt	34	43x3 1/2	35 1/2 x 4	N
35282	5.3	186	33.7	73-2800	L	G	A	7-2 1/2	10 1/2	CC	No	Str	M	AL	AL	P. BL	Yo	Spl	Tim 31020	Ros	L61HV	559	G	TX	140	83	34	37x2 1/2	52x4	N
36282	5.3	186	33.7	73-2800	L	G	A	7-2 1/2	10 1/2	CC	No	Str	M	AL	AL	P. BL	Yo	Spl	Tim 31020	Ros	L61HV	559	G	TX	140	83	34	37x2 1/2	52x4	N
37339	4.7	210	38.4	76-2400	L	G	A	7-2 1/2	13 1/2	PC	Opt	Str	M	AL	AL	P. BL	Yo	Spl	Shu 5572	Ros	L61HV	559	G	CD	168	101	34 1/2	39 1/2 x 2 1/2	52x4	N
38428	4.4	283	45.9	94-2200	L	G	A	7-3	14	PC	Ha	Str	M	AL	AL	P. BL	Yo	Spl	Shu 5582B	Ros	L61HV	625	G	CD	168	101	34 1/2	40x2 1/2	52x4	N
39428	4.4	283	45.9	94-2200	L	G	A	7-3	14	PC	Ha	Str	M	AL	AL	P. BL	Yo	Spl	Shu 5582B	Ros	L61HV	625	G	CD	168	101	34 1/2	40x2 1/2	52x4	N
40282	5.4	176	33.8	73-2800	L	G	A	7-2 1/2	10 1/2	CC	Opt	Str	M	AL	AL	P. BL	Yo	Spl	Shu 5582B	Ros	L61HV	625	G	CD	168	101	34 1/2	40x2 1/2	52x4	N
41298	4.7	190	33.7	70-2600	L	G	A	7-2 1/2	13 1/2	PC	Ha	Str	M	AL	AL	P. BL	Yo	Spl	Shu 5582B	Ros	L61HV	625	G	CD	168	101	34 1/2	40x2 1/2	52x4	N
42361	4.7	190	33.7	70-2600	L	G	A	7-2 1/2	13 1/2	PC	Ha	Str	M	AL	AL	P. BL	Yo	Spl	Shu 5582B	Ros	L61HV	625	G	CD	168	101	34 1/2	40x2 1/2	52x4	N
43501	5.0	330	48.6	110-2200	L	G	A	7-3	12 1/2	PC	Ha	Str	M	AL	AL	P. BL	Yo	Spl	Shu 5582B	Ros	L61HV	625	G	CD	142	87 1/2	34	39 1/2 x 2 1/2	54x3	N
44428	4.5	283	45.9	94-2200	L	G	A	7-3	14	PC																				



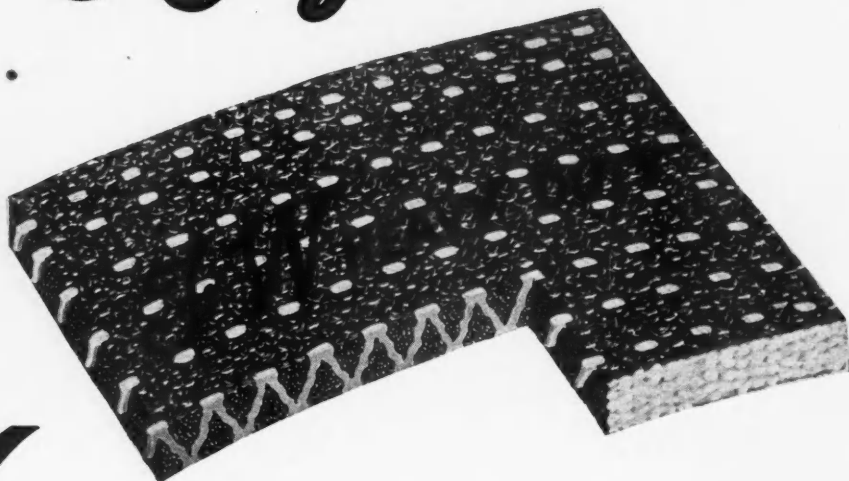
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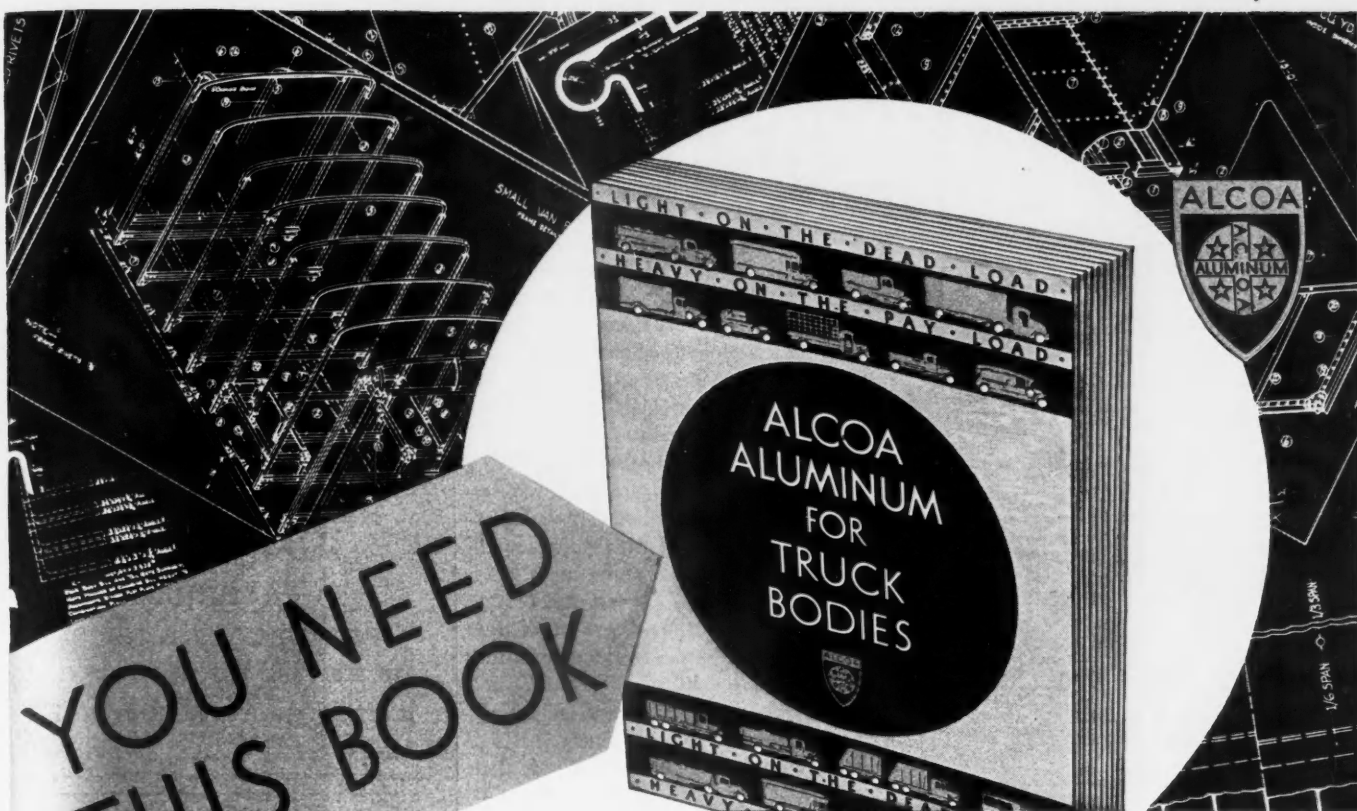
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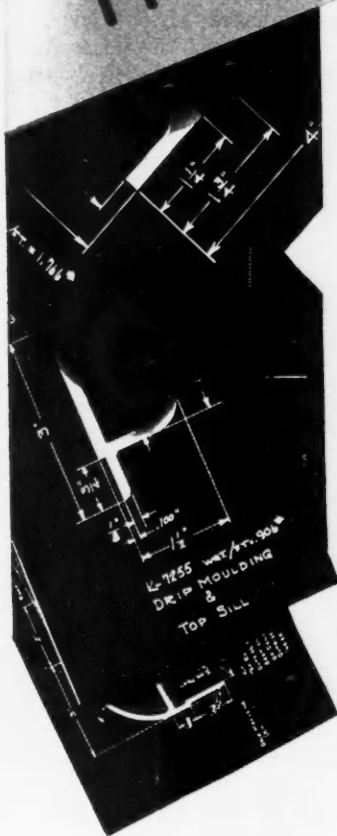
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## 17 States Fail to Agree

(CONTINUED FROM PAGE 40)

fit of the railroads," declared that motor trucks have reindustrialized the nation and recommended the adoption of the AAHO code with certain clarifications.

These were "that wherever changes may be made by a state affecting existing equipment a period of at least five years should be allowed to wear out such equipment, and that in the gross weight formula "c" (L plus 40) the minimum value of the coefficient "c" should be 800.

Speaking for truck operators, Ted V. Rodgers, president of the American Trucking Associations, Inc., pleaded for "measures that shall insure the fullest service of the highways in behalf of the whole public interest." While urging the conference not to subject trucks "to the kind of regulation the railroads will ask," he said,

"we do not object to proper regulation. We know it is inevitable, and that if wise it will be helpful rather than harmful to us."

Asking for uniformity and reciprocity he referred to the AAHO code as if he, too, were under the impression that it was to be the basis of discussion by the conference. He voiced exceptions to several of the code provisions. Arguing against the 35-ft. maximum length for tractor-semi-trailer, Mr. Rodgers recommended that "the minimum restriction of length of combination of vehicles shall not be less than 45 ft. regardless of the number of units in the combination." He also favored 18,000 lb. per axle with a 16 2/3 per cent increase for balloon tires, and urged that the gross load maxima be eliminated and that allowable weights on axles govern gross load weights. He asked that the value of the coefficient in the gross weight formula be not less than 800.

Speaking for truck manufacturers, W. H. Brearley, of the Autocar Co., said: "The recommendations of the American Association of Highway officials represent the judgment of the best engineering opinion in the State Highway Departments in the U. S. Bureau of Public Roads, based on their experience over a period of years, and we, as manufacturers, accept their recommendations as minimum standards."

He pointed out that, contrary to the railroads' contentions, the effect of the recommendations is to make an actual reduction in the limits permitted in many states. He supported the code clarifications suggested by the National Highway Users Conference.

The viewpoint of the "competing forms of transportation" was expressed by John J. Pelley, president of the New York, New Haven & Hartford Railroad. He took the position that the types of highway construction which would be necessitated in order to carry the weights and sizes of vehicles which the AAHO code allows would cost taxpayers, including railroads, so much

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as to be decidedly against the public interest.

On this premise Mr. Pelley constructed a 4000-word argument, containing much that has come to be considered typical railroad cant and much that indicates that the individual who prepared the argument either was inadequately informed on code matters or else poorly advised—perhaps both.

## Mr. Eastman's Request

(CONTINUED FROM PAGE 24)

### E. Relations of Industry to Transportation

1. Should the present commodities Clause (Sec. 1, par. 8, Interstate Commerce Act) be modified to forbid by specific enactment the ownership of railroads by industries?

2. Should either the present or the broader commodities clause suggested in 1 above be made applicable to water carriers?

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